UPS-Management Software

User manual

Release 56

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The UPS-Management software includes a license key for each license. This license is valid for using the UPS service on one server with one UPS and an unlimited number of connected UPSMON-WINDOWS workstations. For operation on several servers a license for every new server is required, disregarding the fact if UPS service runs at that location or if the server is halted by an UPS service via remote command RCCMD. The same regulations are applicable to the use of remote send/receive modules RCCMD and multiserver shutdown under Windows OS, MAC OS and Unix. The service programs are generally delivered as a single license. If there is more than one disk in one package all of them have the same serial number and must not be used for future installations. To use a single CD-ROM for several multiserver shutdown installations you have to purchase additional CD license keys.

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1 What is the UPS-Management Software?

The UPS-Management Software is a client/server application for networks and local workstations. The server module of the UPS-Management Software is UPSMAN, which communicates via RS-232 cable with the UPS. When UPSMAN begins, it collects the messages sent from the UPS as a background program. UPSMAN also interprets received messages and makes them available to the client module, the UPSMON and to any SNMP station. The data communication to the UPSMON is achieved via TCP/IP, IPX, Named Pipes or SNMP.

The protocol of UPSMAN with UPSMAN.MIB is a special private MIB type 1, the UNIX UPSMANB corresponds to the MIB 2 standard RFC 1213 & 1628. All UPSMAN programmes are using the GENEREX own communication protocol UPSMON, which is provided as an API to all OEM customers in order to create own applications.

If UPSMAN detects voltage variations or a power loss it can execute different *system event routines* (EVENTS), which, for example, may shutdown the server or send warnings to connected users. These *system event routines,* which are part of the UPS-Management Software, are fully customisable.

UPSMON is used for operating and monitoring the active UPSMAN software connected to an UPS. You can program UPS-Routines (e.g. define dates for automatic UPS-tests, shutdown the system at defined dates, etc.), check the status of the UPS, execute different UPS-tests or create power quality statistics. With UPSMON you can also constantly monitor and evaluate the event protocol (log file) that is permanently updated by UPSMAN.

RCCMD ("Remote Console Command") is an additional module which executes a command on a remote system, similar to the Remote Shell-Program (RSH) known in the Unix environment. RCCMD is used to provide a simultaneous shutdown of several servers that are all supported by the same UPS.

The following listed features depend on the UPS model. Please ask your UPS dealer which of these functions are available with your UPS model. The following list shows you the maximum variety of features of the current UPS-Management Software.

☑ Client/server software for heterogeneous networks with one and three-phased UPS. "Look & feel" is identical on all platforms.

☑ Supports most kinds of UPS of all major UPS manufacturers with serial (RS-232) or contact UPS protocols.

☑ Integrated SNMP agent for NetWare, MS-WINDOWS™ NT/2000, Linux and SUN

☑ Modular structure; optional it is possible to extend the system for multi-UPS surveillance via UNMS. External modules (hardware) allow for a variety of system

extensions such as: TempMan, UPS Dialer (modem solution), UPS Switcher, UPS SNMP Watch, JAVAMON HP OpenView UPSMON and others.

☑ Supports all important network protocols for the graphical control of the UPS from every Windows Station in the network.

☑ Automatic unattended shutdown of local and remote computers in networks (Master/Slave via RCCMD module)

☑ Low battery warning, on-screen autonomy time, battery time countdown, Low battery warning, UPS temperature such as battery and internal temperature, defect battery warning, time and date stamp event logging, extensive logging of all UPS activity and user messaging.

☑ Battery management, surveillance and counter for power events.

☑ SMTP compatible system with messaging service for E-mail, E-mail to SMS or other external services.

☑ Menu for several UPS test functions, such as economy mode, UPS temperature, battery load, power socket switching and UPS emergency cut-off.

☑ Shutdown and test functions can be executed with a Scheduler

☑ Graphic display of quality of incoming power load frequency in minimum-maximum or average values.

☑ Also monitors UPS systems, via SNMP connection.

2 Network Shutdown with RCCMD

The program RCCMD is designed to execute a command on a remote system in a TCP/IP network. RCCMD works like the Remote Shell (RSH) known in the Unix environment. Inside the UPS-Management Software RCCMD is used to shutdown several servers that are all powered by a single UPS. For this job, one of these computers is configured as UPS-master server.

Install the UPS-Management Software UPSMAN on your UPS server and connect it to the UPS. Alternatively, a SNMP adapter CS-111 or CS-121 can be used for this as well. The other servers are only connected to the UPS power supply, no RS-232 connection is necessary. On these remote systems, install RCCMD (copy the modules) and create a shutdown routine for every system. This shutdown routine may be a batch file, shell script or ncf-file, that contains the down and other commands for this system. After that, add *RCCMD* to the shutdown job or to the EVENT configuration of the computer running as UPS master server.

So now you have a computer in your server network supervising the UPS. The other servers execute RCCMD and wait for the RCCMD signal of the UPS server. If a power

failure forces the master computer to shutdown the server-network, the shutdown-job of the UPS-server will start RCCMD. RCCMD now sends the RCCMD-signal to all computers in its list. The computers receive this signal and the installed RCCMD will execute the programmed command.

Please note that RCCMD must always installed in two different operating ways:

1. as a sending process on the UPS-server,

   (RCCMD –s) (send)

2. as a receiving process (background-process) on the receiving computers.

   (RCCMD –l) (listen)

In contrast to the RSH, RCCMD does not include the command that is to be executed in the sending process but instead deposits the command with the receiving process. This provides a security advantage in comparison to the RSH. Furthermore the receiving process may check which computer sends the RCCMD-signal and determines whether to accept it or not.

Attention: **If a name resolution is achieved via DNS, please always use the IP-address (and not the computer name) for a network shutdown with RCCMD. In case the DNS is not available, the network shutdown will not work, if this method is not used.**

RCCMD Version 2

The extended Version of RCCMD is also able to execute commands on remote computers, execute the shutdown batch in the same TCP/IP port 6003, execute an e-mail batch, enable log file entries etc. The RCCMD 2 sender (UPSMAN or CS121 SNMP adapter) sends the corresponding RCCMD signal and the RCCMD 2 client starts the corresponding batch file, which then lead to the execution of the net send message.

The initial command will always come from the UPSMAN or CS121 where as the execution will always be on the RCCMD client side.

Example: The CS121 should send a net send (network message) to a Windows NT network. The CS121 can be programmed so that during the event “Power fail” a “RCCMD message” is send. The text of the message can be entered by the user.

Upon on receiving the message by the RCCMD 2 client, the client is starting a batch file and sends the net send message. Sender of the message will bet he client and initiator is the UPSMAN or CS121.

This way it is possible to send messages, e-mail etc. in the different networks and operating systems, initiated by an UPS alarm.

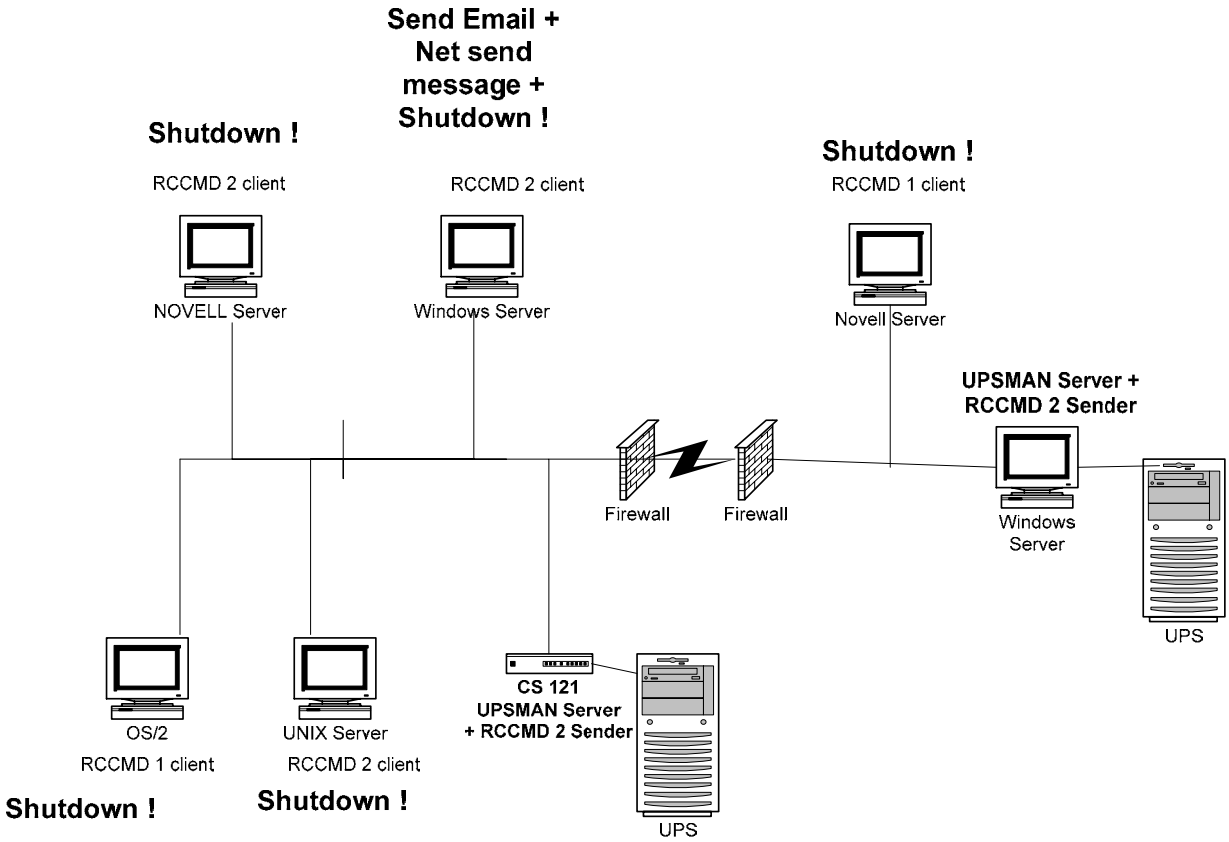


Figure 1 UPSMAN and RCCMD in a network environment

3 How to install/configure the UPS Management Software?

3.1 Preparation of the Installation

Before you start with the installation of the UPS-Management Software you should familiarise yourself with the UPS installation. Make sure not to overload the UPS and charge the batteries before connecting to any device.

Before you install the UPS-Management Software, please ensure that your UPS is working. Connect the UPS to the relevant serial port of your computer. Some UPS models provide several connections/interfaces. Please inform yourself about which connection/interface to use and use the provided interface cable for the connection with your PC.

Attention: **This cable is a special cable, which is provided by the manufacturer of your UPS system. Please see the corresponding cable configurations in the appendix of this technical user manual of the UPS hardware.**

This software also provides a number of updates and patches for your system. If you are unsure as to whether your system software has outdated modules (Patches, DLL's) you can use the enclosed updates/patches for your operating system. Please note that a

reboot is necessary after a system module upgrade. For Novell NetWare, additional modules (Error correction status as provided by Novell) may be required for a current patch level status in contrast to the ones automatically provided on our CD.

In case problems occur we recommend to obtain NetWare drivers and patch levels from the Internet, other providers, your manufacturer or dealer in order to ensure perfect operation.

Updates and patches for your copy of the UPS-Management Software, or other Models that are no longer part of the CD-ROM (”no longer supported systems”) can be downloaded from the Internet. Please note that only 1 UPSMAN and 1 RCCMD (1 RCCMD sender and receiver) are allowed to run simultaneously on a network –RCCMD is mostly optional. Your UPS Dealer will provide you with additional licenses or simply visit (www.generex.de), if you wish a faster delivery.

3.2 Windows 95/98/NT/2000/XP/VISTA UPSMAN

General

The UPSMAN for 95/98/NT/2000/XP is a real background service and has no graphical output. The UPSMAN is the only necessary process for all UPS monitoring. The UPSMON module is responsible for the graphical administration, but not compulsory for normal operation.

Installation

The UPS-Management Software is distributed on a CD-ROM or as full version download from the web site of the UPS manufacturer (license key required) The Windows 95/98/NT/2000/XP part of the software is found in the root directory and is started automatically or via the SETUP command. This SETUP process copies the desired UPS files to your local hard drive.

Licensing

The first input window is the license key of the CD (license = license key = key-code). This key code can be found in every printed user manual or on the backside of the bundling UPS software Jewel cases. For the multiserver shutdown additional RCCMD licenses are needed. The additional (optional) key codes are available depending on the number of the ordered licenses.

Every CD-ROM gives the customer the permission to install 1 UPSMAN software with RS-232 communication and/or RCCMD modules for the multiserver shutdown.

(The RCCMD send function is already integrated into the UPSMAN. For every computer to perform a shutdown using RCCMD, additional license keys are necessary. Additional RCCMD installations can be executed from the same CD, using the additional license keys.)

Beside copy protection, the license key distinguishes the different OEM UPS customers from each other. It is not permitted to use any other license key than the one provided with the software.

3.2.1 Installation of the UPS-Management Software

To start, please make sure that you have full administrator rights in order to complete the installation.

Step 1:	Put the CD into the CD-ROM drive of your computer or download the software into a specific directory.
Step 2:	Please execute the installation program *setup.exe* in order to copy the files to your system and chose a desired setup language.
Step 3:	Please enter your license key an choose your corresponding Windows OS from the list. The used license determines, which module can be installed.

Attention:

If you enter a wrong license number at this stage, the UPS-Management software will be set to a 30 day trial version. Please contact your UPS dealer for the full, correct license if it was not with the original CD-ROM. You may enter the correct license in the main window of the configuration at a later stage. (Please see picture)

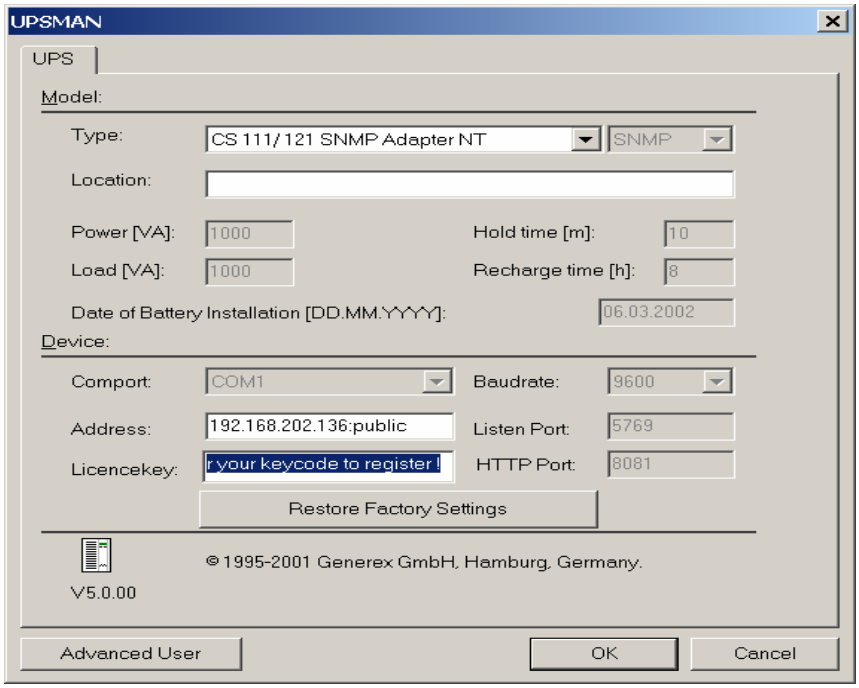


Figure 2 thirty-day trial without key code

Step 4:

Starting with the UPS Management Software version 5 Windows users can select between UPSMAN and the Mini driver software. The UPS Minidriver adds the model list of the OEM UPSMAN software to the energy options menu in the Windows control panel.

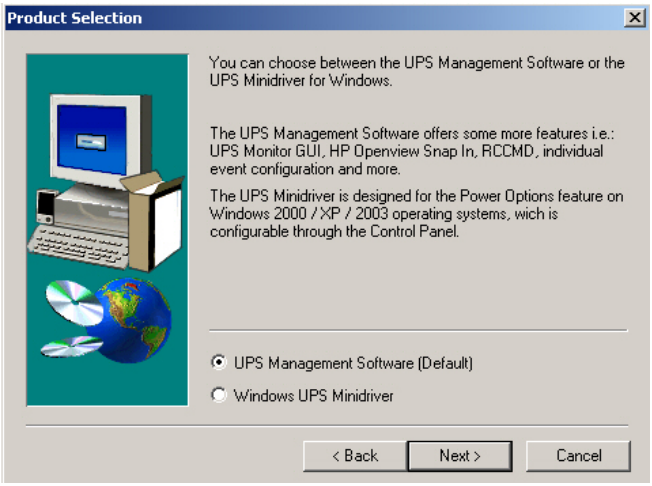

Product Selection
You can choose between the UPS Management Software or the UPS Minidriver for Windows.
The UPS Management Software offers some more features i.e.: UPS Monitor GUI, HP Openview Snap In, RCCMD, individual event configuration and more.
The UPS Minidriver is designed for the Power Options feature on Windows 2000 / XP / 2003 operating systems, wich is configurable through the Control Panel.
UPS Management Software (Default)
Windows UPS Minidriver
< Back
Next >
Cancel

Figure 3 UPS Management or Minidriver

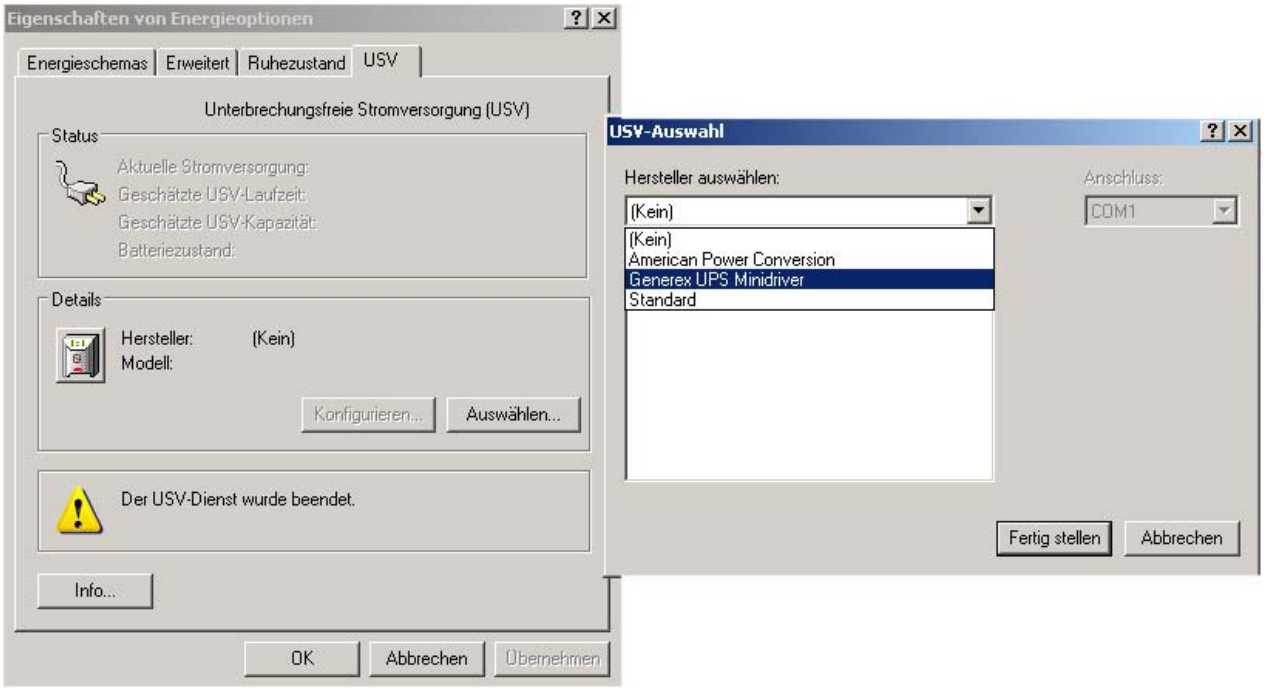


Figure 4 Windows control panel UPS with Minidriver

Produkt Auswahl
Bitte wählen Sie das gewuenschte Produkt zur
UPS Manager Version 4 fuer RS-232 USV
UPS Dialer
UPS SNMPWatch - Parallel-USV Management
HP Open View Snap-In fuer MS Windows NT
USV Temperatur Manager
RCCMD Multi Server Shutdown Modul
Um genauere Informationen zu den hier aufgefuehrten zu erhalten, fragen Sie bitte Ihren Händler.
< Zurueck
Weiter >
Abbruch

Figure 5 Other UPS Management Modules

Other modules can be installed later from the same set-up file by using other license keys.

☑ UPS Dialer: The UPSDIALER software is able to monitor UPS devices and other device via a the telephone network.

☑ UPS SNMPWatch: This software enables the monitoring of parallel redundant connected UPS systems, with a lot of Event configuration options.

☑ HP OpenView: Graphical monitoring tool, which is integrated as a snap-in tool into the HP OpenView interface.

☑ UPS Temperature Manager: This software measures temperature, humidity and other sensor data via a hardware-measuring unit and visualises the data with the UPS-Management software.

☑ RCCMD multiserver shutdown module: This module is used for the multiserver shutdown. It will run as a service (LISTENER/SLAVE) on the client computer and as a foreground program (SENDER/MASTER) for the server computer.

Step 5: After proceeding the installation of the UPS Manager. A check box selection dialogue is presented for choosing the desired components of the installation.

Komponenten wählen
Wählen Sie die Komponenten, die Sie installieren möchten, und löschen Sie die Komponenten, die Sie nicht installieren möchten.
Komponenten
UPS Manager 5530 K
UPS Monitor Windows 32 bit Client 5516 K
UPS Network Management System 2194 K
Upsman Webserver 5718 K
MS Word DOC Hilfedatei 7431 K
Beschreibung
Modul zur Rs-232 Kommunikation mit der USV (UPSMAN).
Ändern...
Benötigt: 26390 K
Verfügbar: 541312 K
< Zurück
Weiter >
Abbrechen

Figure 6 Component selection dialogue

☑ UPS MANAGER: This is a background process (UPSMAN), which maintains the direct UPS RS-232 connection with the computer.

☑ UPS Monitor Windows 32bit Client: This is the remote Windows client software. This may also be installed on remote clients in order to monitor the UPS remotely. In most cases it can be installed on the local UPS protected Windows computer together with the UPSMAN software.

☑ UPS Network Management system: This is a limited version of the UPS network management software (9 UPS max.), which is able to display the statistics of the UPS installed in the network. This limited version is also available as customised version without restrictions.

☑ UPSMAN Webserver: This is a graphic UPSMON variation, which supports the new JAVA script based Internet browser, such as Netscape Communicator 4.6x and 6.x, MS-Internet Explorer 5.x. The JAVAMON tool can connect to a SNMP adapter or UPSMAN process from all platforms, with an Internet browser. All UPSMAN/UPSMON functions and features are available with the JAVAMON. A remote configuration is hence possible without user access rights on the remote computer.

☑ MS-Word help files

☑ PDF Help files

After the desired options have been chosen, the files are copied (default) into the c:\programfiles\ups\. Directory. Here the files of the UPSMAN, UPSMON and UPSJAVAMON have subdirectories.

Attention: **We recommend not to use any subdirectory name(s) e.g. Program files \UPSMAN 10kva\ or "SYS\UPS\U P S\" with < > (blank spaces). This may cause problems within the customised configuration.**

The customer may change the default program group name UPS SOFTWARE into any other name, if desired.

After the files have been copied, a README.TXT file is opened that shows all the latest news about this software and the ERROR codes. It is helpful to have the configuration data and the error codes at hand when calling the support hotline.

Parallel the UPSMAN.BAT or UPSCONF.BAT (Novell) file is executed. This batch file has to be started with every update of the UPSMAN.EXE or UPSMAN.NLM software (RESET of the system), because it is executing the NT/95/98/2000/XP registry entry at the local computer. In a DOS windows you can see that the batch file is executing the following:

To find out if SIEMENS NIXDORF SERVERVIEW is installed on your computer. If so, an entry is made into the registry, which results in a special button inside the SNI Serverview software. This button will start the UPSMON client. Additional the SNI Serverview Application may use the UPSMAN SNMP communication directly.

☑ Stopping and removing any older UPSMAN processes from the registry

☑ To install/reinstall the new UPSMAN into the registry and starts the UPSMAN configuration program.

☑ Installs and starts the UPSMAN Web-server

All these actions are done via the UPSMAN.EXE program with additional start parameters; e.g. UPSMAN -*config starts* the configuration from any directory, identical to the UPSMAN configuration icons. Using NetWare, the configuration is done via a DLL, which is executed on a Windows 95/98/NT/2000/XP Workstation.

Info: Start ”UPSMAN.EXE –Debug” if you want to see the background action of the UPS/UPSMAN communication.

Step 6: After all files have been copied onto the hard drive, the configuration starts automatically.

3.2.2 Configuration of the UPSMAN

3.2.2.1 Select UPS Model and Connection Type

The configuration window is opened automatically and the user has to choose the correct UPS model. (manual: call "UPSMAN –CONFIG) This is the most important part of the configuration because with the model name the correct UPS RS-232 protocol is linked. If a

wrong model is chosen from the list, the UPSMAN can not start. If you would like to enter the configuration at a later point in time, you may do so by logging on as administrator. Select the UPSMAN icon from the control panel section (or from the program directory UPSMAN configuration). This icon is only available from the user account from which the installation was performed in the first place. From other user accounts the configuration can be started with upsman_config.

Automatic start at server boot

The default of every UPSMAN is to start automatically at every new server boot. If you want to change this, go to the NT control panel, services and mark the UPSMAN Service under "Start". Change the start up now from automatic to manual.

Using Windows 95/98 this procedure is achieved manually by using the tool regedit.exe. Start regedit.exe and change to the key

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\Current\Version\Run

and delete the entry current entry there. An automatic is possible by making a shortcut to upsman.exe in the auto start folder. Under NetWare please insert a load call for the upsman.nll into to the autoexec.ncf (after testing successfully) manually.

Step 1: Selecting the UPS-Model

To select your UPS-model, click with the mouse on the scroll box symbol on the right side of the model list. Next, choose the UPS model that you want to install. All other adjustments which correspond with your selected UPS model will be done automatically, if the UPS has serial communication.

UPS models with serial connections do not need additional adjustments, because these models transfer all values to the UPS-Management software. If you have a UPS-model with a port-type *cable* which does not transfer the connected *Load* to the UPS-Management Software, you have to enter the values of the actual *load* manually. Add the input power requirements in Watts of all connected units and calculate the Watt/0,8 (= VA)

ATTENTION: **If you use a UPS-model with the port-type "cable", please notice that the values for Hold- and Recharge time are in accordance with the manufacturers specifications and should only be altered in special configurations since the UPS could be discharged before the system has been shutdown.**

Some UPS models have both port types (*cable* and *serial*). To guarantee the correct function of your UPS-Management Software use the default settings and the cable provided with the UPS or the software. Different cables will be required for different port types.

Enter the name or place of your server, in the section *Location* (e.g. ”Berlin”)

Step 2: Selecting the serial port

To select a serial port (*Comport*) click with the mouse on the COM checkbox on the right side. The communication parameter will be set automatically, corresponding to the in step 1 selected UPS model. Normally these settings do not have to be changed by the user.

Possible problems with older versions (CD 4.17 /UPSMAN before V. 4.50)

A critical installation is possible under Windows and NetWare, with the use of ”cable 2” UPS types. The service will start in any situation, but will shutdown the computer immediately if the cable is not correct or the wrong com port has been chosen. If a cable 2 UPS is installed on a NT computer, the customer should set the automatic start of the UPSMAN service to ”manual” before trying to start the UPSMAN. In this case a wrong configuration does not cause constant up and down of the system, just because the cable is defect of the user has just tried all kind of cables. Most UPS work with serial communication, so this problem is rarely the case.

The Comports are in most cases already installed and activated. See in the Control Panel if the COM ports exist. The baud rate mentioned here is not important for the UPSMAN, the UPSMAN has its own internal baud rate settings.

In case your system is continuously starting and stopping, because of wrong settings with the cable type 2, please restart your system in the DOS-mode (via disk or F8 key during the boot procedure.) and rename the UPSMAN.EXE file.

ATTENTION: **The selection of the serial interface has to be carried out manually, since the UPS-Management Software cannot detect which comport the UPS is connected to.**

The configuration is now completed. Please click ”OK” in the dialog window; the new configuration settings will be stored in the registration database. The UPSMAN configuration will ask you, if you wish to start the UPSMAN service now. If you like to return to the old, pre-set configuration values, please click on the button ”Restore factory settings”.

3.2.2.2 Additional configuration data

All configuration data in the menus have "tool tips" in the corresponding language. Every menu feature will be explained "online", please find identical information also in the following chapter of this user manual.

System

UPSMON Password:	Default - no password - The user may enter a password here, which will be asked when UPSMON connect is executed. Without this

password, no UPSMON or JAVAMON connect is permitted.

UPSMAN/RCCMD 2

Traps enabled:

When this function is activated UPS events are sent in form of UPSMAN traps to RCCMD clients, whether or whether not RCCMD (send RCCMD ID etc.) is configured in the UPSMAN events. On the RCCMD client side, two functions „Check UPSMAN alive“ and „RCCMD2/UNMS traps“ have to be activated. When a power fail occurs e.g. a message box is displayed on the RCCMD client. In contrast to the configuration of the UPSMAN events (Send RCCMD ID etc.) thsi function has the benefit of not causing to much network traficc with polling between UPSMAN and RCCMD client(s).

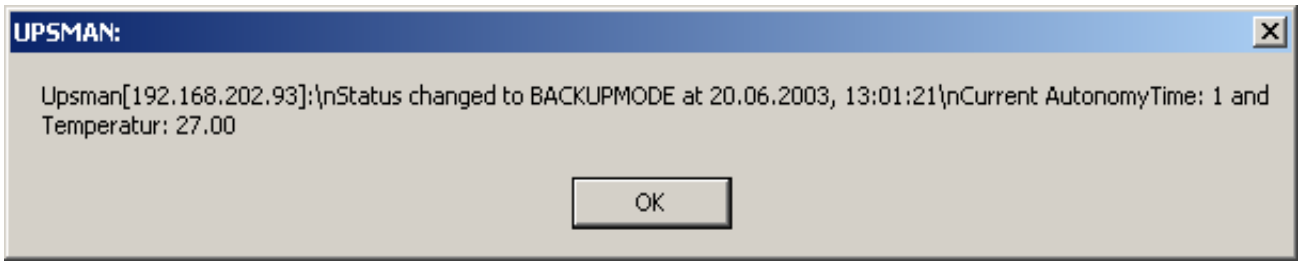

UPSMAN:
Upsman[192.168.202.93]:\nStatus changed to BACKUPMODE at 20.06.2003, 13:01:21\nCurrent AutonomyTime: 1 and Temperatur: 27.00
OK

Figure 7 Message on RCCMD client when UPSMAN event has occurred.

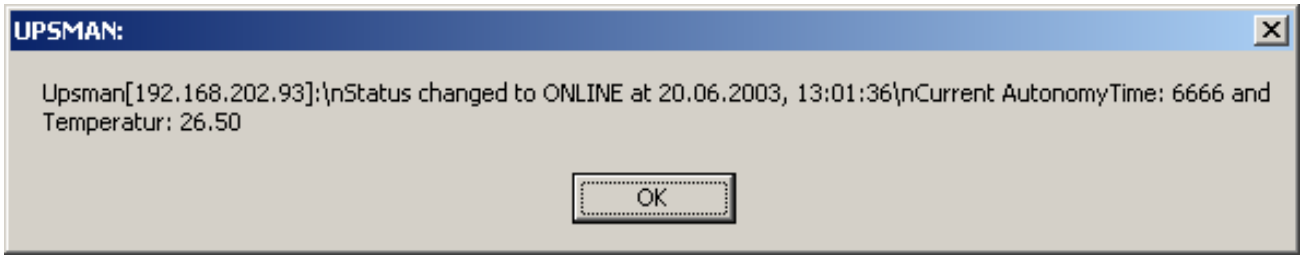

UPSMAN:
Upsman[192.168.202.93]:\nStatus changed to ONLINE at 20.06.2003, 13:01:36\nCurrent AutonomyTime: 6666 and Temperatur: 26.50
OK

Figure 8 Message on RCCMD client when event is over.

The UNMS trap functions in the same way, with the difference that not a message is send to teh recieves, but the usual UNMS trap, which makes teh UPSMAN/Location symbol on the graphical change color. The user may now initiate the normal UNMS functions up on receiving the alarm.

UPS Check rate

Defines the time-interval (in seconds) in which the UPS-Management Software polls data from

	the UPS. The system will be slowed down if this value is too small, because of continous communication with the UPS. If the value is too high the system will react more slowly in case of a power failure. For continous use we recommend a relativ high value of between 15 and 30 seconds.

3.2.2.3 System parameter: System Shutdown

Enable System Shutdown	Defines if the system will start the shutdown routine in the event of a shutdown call from the UPS during a power failure.

In the case of a shutdown, the internal event routine will close down all active applications, which allow this. The Windows-program will also be closed. This mechanism is not supports by the Windows95/16-bit version. In order to make this mechanism work for the 16-bit version, the shutdown-routine needs to be replaced with the provided program *exitw32.exe, shutcmd.exe or shutcmd.nlm*. If you have installed the Windows95 version of the UPSMAN software, these settings are automatically pre-configured by default.

ATTENTION:	**Make sure that the checkbox "System Shutdown enabled" is always active if you do not want to use a user-defined shutdown-job. If not, the UPS might be turned off during a power failure before the system has been shutdown properly.**
Downtime	Defines how many minutes before the UPS battery is discharged, that the shutdown procedure begins. This time interval has to be large enough to guarantee a proper shutdown of the system before the UPS is turned off. Ensure that this value is calculated on a large scale: (e.g. with 10 minutes hold time of the UPS, start the shutdown procedure at least 3 minutes before the batteries are exhausted [=default]).
Enables local shutdown	(Default = on) When OFF, the UPSMAN computer will not execute a shutdown.
Initiate shutdown always	
after x minutes	Determines how many minutes after power fail the UPSMAN computer is performing a shutdown.
Configure shutdown	The type of shutdown can be selected here. Please note that the UPS can not boot the

computer after power returned when POWEROFF. (ATX boards) Default is Shutdown.

UPSMAN CONFIG extension: In the new Shutdown-Configuration users can add self-defined actions to the shutdown sequence via the ADD CUSTOM APPLICATION button. In addition users can determine the shutdown sequence order in the same fashion that has already been implemented by RCCMD.

ATTENTION: **Be sure to use the "start" initiative for using EXE programs within batch files (i.e. "start notepade.exe). Also use the "call" initiative for using other batch files within batch files (i.e. "call mybatch.bat").**

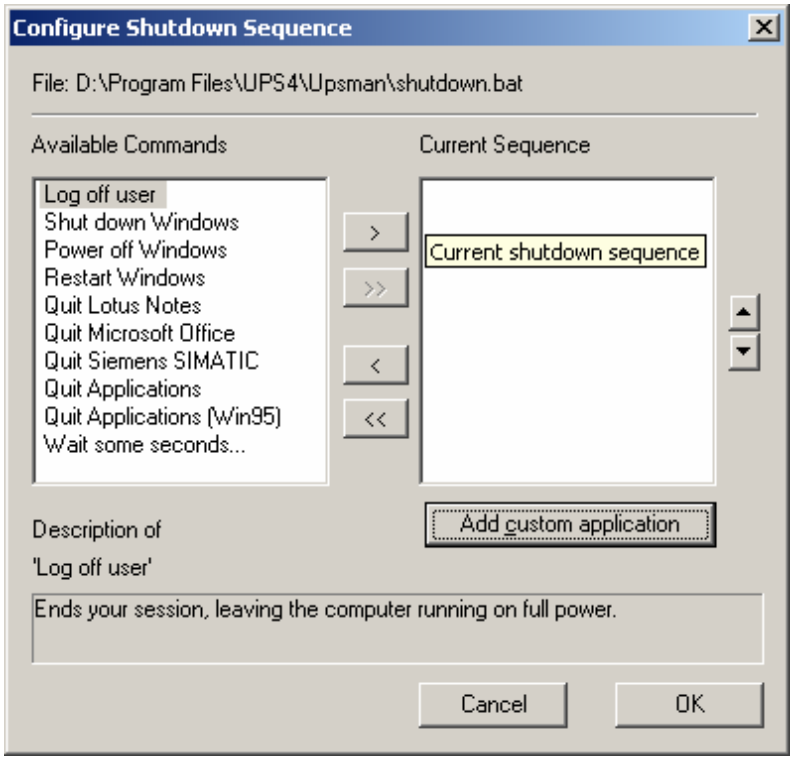


Figure 9 Windows UPSMAN shutdown sequence configuration

3.2.2.4 System parameter: UPS Shutdown

The following functions are not supported by all UPS. In particular, devices with the connection-type *cable* do not support a schedule-controlled down and restore function.

Enable UPS shutdown	Defines if the UPS will be turned off after the completion of the shutdown procedure of the server.
UPS down delay	Defines how many seconds after beginning the shutdown procedure (see Downtime) that the UPS will turn off.

UPS restore delay	Defines how many seconds after turning off the UPS the system is turned on again. For most UPS types it is necessary that the power has been restored before the UPS has completely switched off. With some UPS devices the entry "0" an automatic restart is disabled and the UPS needs to be switched on manually.
Enable SNMP support	Activates or deactivates the SNMP support. Please check in the Event log if this function is properly started. A message "SNMP communication could not be started" shows that an error occurred. No message means that function is working. SNMP is not available for Windows 95. Under NetWare this function is always active and not configurable.
Restart SNMP Service	This will activate a stop/start of the SNMP service under Wndows NT/2000/XP. This function avoids start problems of the UPSMAN agents, using older or not maintained systems.

3.2.2.5 Files

Editor Log file	This UPSMON feature determines (configureable only when disconnected) which editor is used to view the Event log file. The default is notepad.exe.
Event Log file upslog.csv	This creates the name of the Event protocol. The default is a MS-Execel compatible csv file format.
Input Line Statistics	upslog.dat – This file is used for the UPSMON statistics. This is a log file for the input voltage and frequency values/data.
Data Log file	upsdata.csv – This file contains all UPSMAN variables ID 700 or 800 which are part of the message.dat. This way, an individual MS-Excel compatible Log file can be created.
Broadcast Rate	Defines the time interval (in seconds) in which the UPS-Management Software informs the network user via the broadcast command during a power failure of the remaining time until the shutdown is initiated. This value is overwritten with entries

	made in the EVENT configuration. Please note that EVENT configuration always overwrites the default settings.
Logfile Update Rate	Defines the interval (in seconds) in which the UPS-Management Software logs the Input Voltage and Frequency Values. The standard entries into the text file are meade every 15 minutes, if no unusual events occur. If "0" is enterd, no logfile is made.
Logfile Size min.	Defines the minimum time range (in hours) of the log file for Input Voltage and Frequency Values.
Logfile Size max.	Defines the maximum time range (in hours) of the log file for Input Voltage and Frequency Values. The log file will be set back to min. size (value of log file Size min.) if the log file contains more data than the configured value.

3.2.3 Configuration of the JOBS

This part of the configuration exists only because of compatibility to older version of this software. All Alarms and Jobs are controlled and configured via the EVENT section of the configuration. Because of certain system events, the software makes the execution of jobs (**.bat-file or *.ncf*) available to enable you to adjust the UPS-Management software to your requirements. As standard the UPS-Management Software executes internal system event routines (Default: no entry, corresponds to the parameters "*own*" or *"default"* in older versions of the software.) These jobs are by default without no entries, as the functionality is entirely controlled by the user or the Event configuration.

Broadcast
1. This job is executed during a power failure in the time-interval Broadcast Rate (see System parameter: Timeframe/Broadcast Rate)

2. The system informs the user about the remaining uptime of the server. ("own")

Power failure
1. This job is executed immediately after a power failure has been detected.
2. The system informs the user that the power supply is interrupted.

Pwr Restored	1.	This job is executed when the power has returned.
	2.	The system informs the user that the power has been restored.

Shutdown 1. This job is executed at the moment the system starts the shutdown (see System parameter: Downtime).

2. The system will be shutdown and the UPS may be switched off, if configured.

Under NetWare an adjustment of the path name in the UNC syntax is necessary, e.g. \\netwareserver\sys\ups\upsman\myscript.ncf

Attention: **If you created your own shutdown-job, you have to make sure that it has a down command at the end of your script; otherwise the system will not be shutdown. Please use the provided shutcmd.exe program for this.**

Attention: **the UPSMAN program delays the shutdown, in case a script is entered here. Every script will be executed first and then the shutdown will be initiated.**

Special: Special Jobs

These special jobs allow the execution of own programs and batch files. These jobs can be set in the time frame when the UPS is running on battery mode. As soon as the UPS ”Remaining Time” is equal or less to the pre-set value, the program or batch procedure is started.

Attention: **In the Event configuration the user can configure, if a JOB is executed when the Event occurs or after a certain delay. The corresponding event has to be selected from the configuration, using the EDIT button and selecting the option “do after x seconds”. Please refer to the EVENTS configuration section in this manual.**

Once the checkbox is active, the user is able to enter a PATH\COMMAND of the corresponding program or batch file, for the desired script. This script will be started once the Remaining Time ([m] in minutes) is reached.

For example: Different network-server should perform a shutdown via the shutdown script, depending on the importance of each computer. In this case more UPS time can be provided for the more important components of the system.

Additionally, up to four different JOBS can be executed time controlled

Job #1, #2, #3 #4 These jobs will be executed if the remaining time is lower or equal than the configurated values. All jobs are executed again and again until the last job (shutdown) is executed. Usually these

”remaining related jobs” are used for the sequenced multiple computer shutdown in larger networks. So the first group of computers in the network will be shutdown at e.g. 20 minutes remaining time, the next group of computers at 15 min, etc. If these remote computers have a ATX Board or are able to shut-off after the system is down, the load of the UPS will be reduced. Now the UPS will have more autonomytime than before, so the more important computers or group of computers are still working, until the next job #2 is executed (see picture)

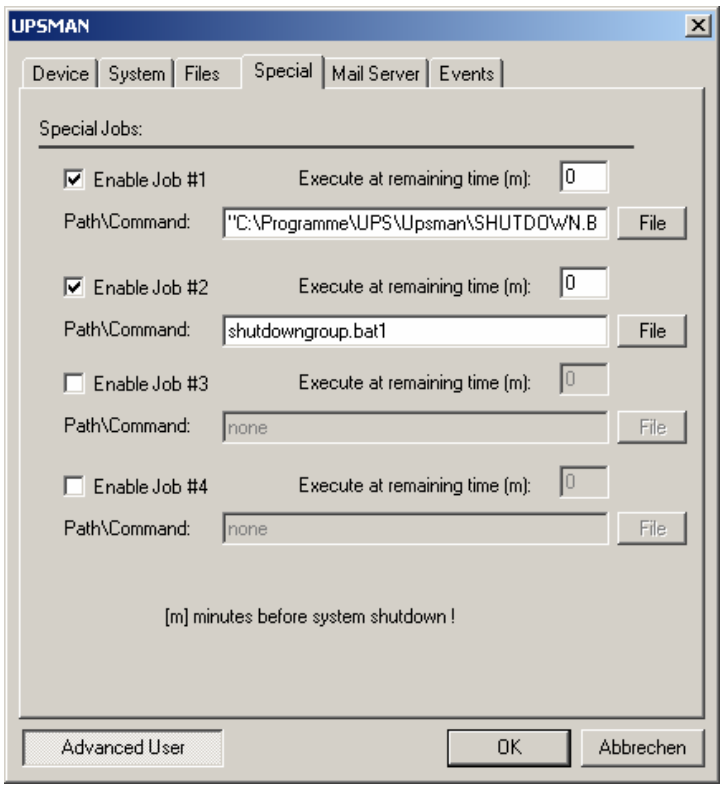


Figure 10 Special jobs

Hint: Analog to this, for a sequencial execution of Jobs a Event group can be used.

Additional module

During the installation of the UPSMAN-Management Software for Windows 95\98\NT\2000/XP the module:

- QBlat

is also installed. Qblat is the UPSMAN software integrated SMTP E-mail tool and is configured via the Event configuration. This module can be used via the Event windows and command line and is only suitable for use with MS-Outlook Express. Please check the following screens:

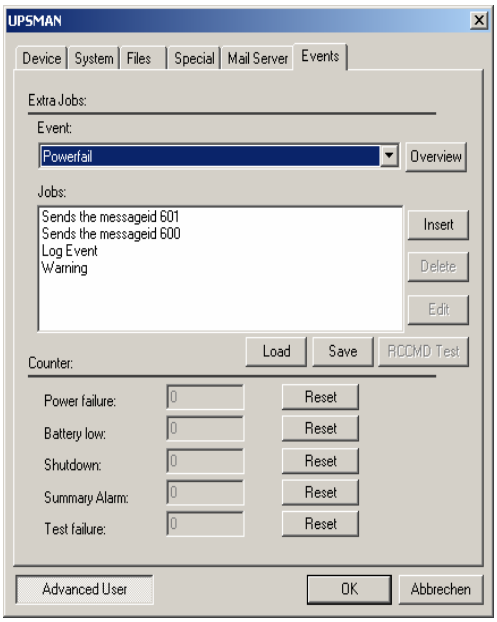


Figure 11 Extra Jobs Power fail

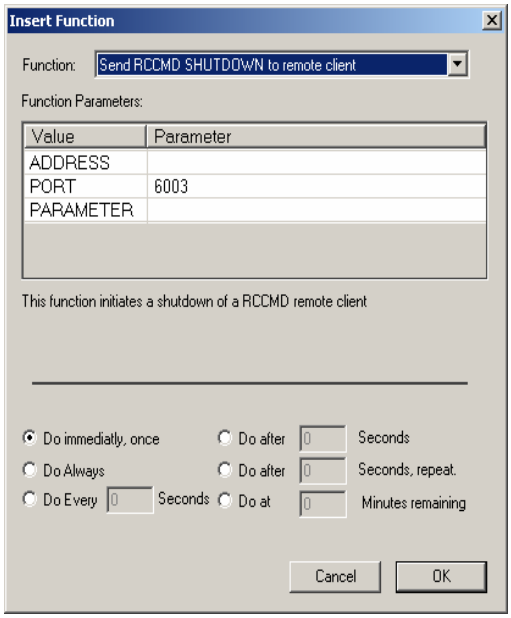


Figure 12 Insert RCCMD Shutdown

In the right window the user can configure a job, responding to an event (Button: Insert) which then sends an e-mail (see left window) to all entered e-mail addresses. Please see also the example configurations.

Please enter *qblat.exe*, to see the syntax.

The UPSMAN offers an own address book in order to send E-mail to groups of users. Please select this address book and create one or more groups. The Outlook Express will show you the standard E-mail address book, where only single addresses can be selected.

Configuration of Qblat.exe

A valid mail server/E-mail address, SMTP authentication has to be entered in the UPSMAN configuration, in the menu card Mail Server in order to use the mail service. Please check screen shot.

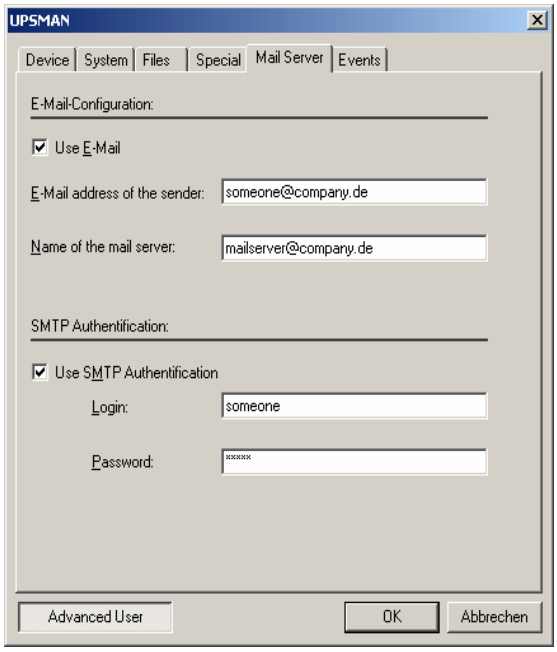


Figure 13 Mail Server

Once this process is completed, the Qblat can send E-mails from every script or batch file directly. If this e-mail should be sent manually and not from the UPSMAN service, the UPSMAN service rights have to be altered.

Start the UPSMAN under a user-account (control panel->service->UPSMAN->start up->account). This user should have valid e-mail access.

Restart UPSMAN and test the mail service. If errors occur, please check first if Qblat.exe executes the mail using the command line.

3.2.4 Configuration: EVENTS

The UPS Events enables the user to utilise and configure the different applications of a UPS. Depending on the matter of use, via Events (Event messages of the UPS) certain actions (Jobs) can be executed with the UPS-Management software. Via an Event it is possible to transfer measured values, status messages to own processes, in order to process those even further (e.g. load statistics etc.).

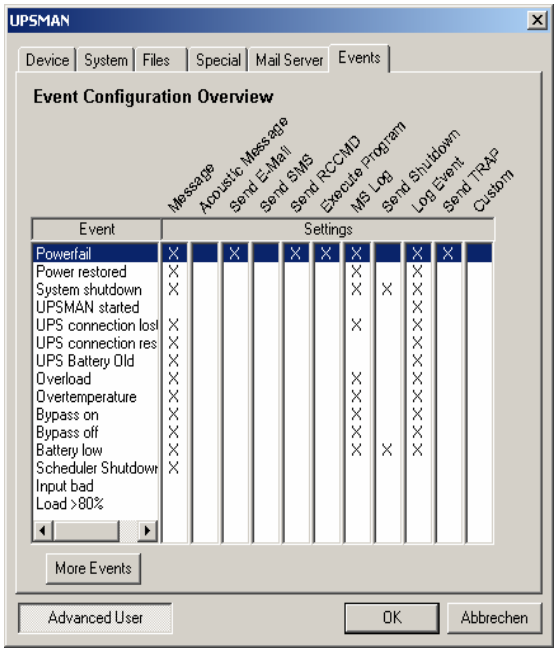
Attention:

Different to previous versions (up until version 4.16) all Events will executed one by one, top-down, meaning that the user has to make sure that e.g. RCCMD signals are send to the remote client before the local RCCMD sender is executing a shutdown. The order of the Event jobs can be sorted using the drag & drop method with the mouse.

Which Events are configurable depends on the type of UPS. The standard messages, which can be used, can be found in the file "message.dat" in the UPSMAN directory.

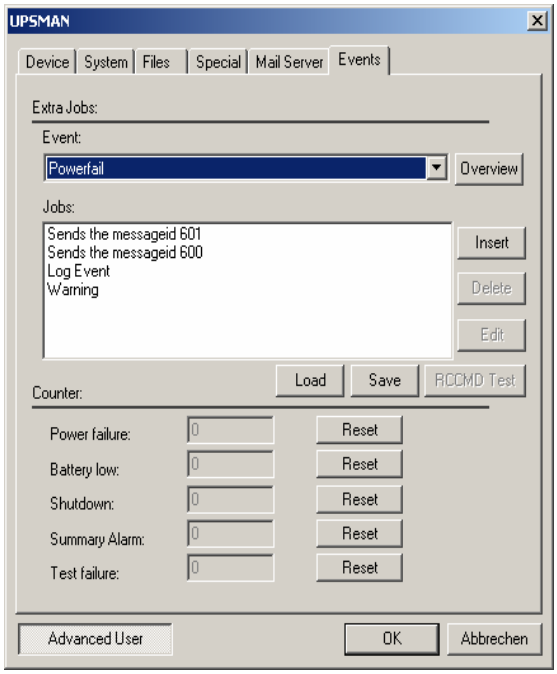
The following section explains the pre-settings.

The register card Events



The event overview displays all available events and the user configuration of the corresponding actions. With a simple mouse click the user is guided to the register card of the corresponding event. The specific event actions can be configured here. Please also check the following chapters of the manual.

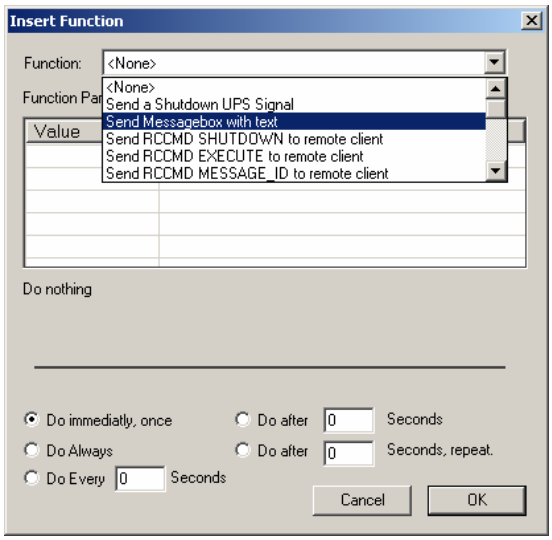
Figure 14 Event overview



In order to configure the Event, please click Advanced User Button. For every Event there are pre-settings. In the above example there are three Jobs configured for the Event „UPS Alarm – Power fail has occurred!“ Two Jobs will send out standard messages, which can be edited in the "Message.dat", whereas the third Event writes a message into the log-file of the UPS- Management Software. In order to add a Job, please click Insert and the following dialog opens.

Figure 15 Advanced button

Insert Function Dialog



Please choose the desired function and set when and how often this function should be executed. Please note listed functions depend on the used operating system and not all of them might be available. In this case please refer to share or freeware programs, which allow the desired function.

Figure 16 Insert action dropdown menu

The following functions are available:

Send a Shutdown UPS Signal	Switches the UPS off after a pre-set time. Please be aware that the UPS is not being switched off before a system shutdown is executed, as otherwise important data may get lost. This shutdown signal only executes the switch off, of the UPS, but not the shutdown of connected computers. The user can configure a delay (in seconds) before the switch off is executed. This is recommendable when a switching off of an UPS is necessary because of over-heating etc.
Send Message box with text	Sends a network message. Enter a user name or use the "*" character (not with NetWare), in order to send the message to all users. Please note that the Windows 95/98 Clients NT message can only be only received if Winpopup.exe or another message service is active. Please also consider that "net send * <text> "with Windows 95/98 does not function correctly. Instead of the " * " a respective machine name e.g. "Workstation1" must be entered. In order to send messages to several users a "Send Message" job must be inserted per user. Please note that the Windows NT user database is not empty and that the computer belongs to a domain, as otherwise the network messages can not be sent.
Send RCCMD SHUTDOWN to	RCCMD (remote console command) is a

remote client	program used for the execution of executable files via network. This tool transmits a TCP/IP signal that is absorbed of the recipient module (RCCMD client software) on another computer. This function is normally used for sending a shutdown command (call of shutdown.bat) over the network to another computer, of any supported operation system. (starting from CD 4.17). From RCCMD Version 2.0 it is possible to use the (*) wildcard or other syntax. For example 192.255.255.255 will send the signal to all computers in the corresponding sub nets. A RCCMD –s –a 192.168.200.255 will send the signal to all computers in the sub net 200. The entry of a IP address or hostname will send RCCMD only to those named. If it is required to shutdown more than one client, additional event jobs can be configured. Hint: If the number of the additional RCMD clients is too high, a batch file, which contains the RCCMD –s commands can be used instead. This much faster and also easier to handle than the a long list of event job list. This batch can be executed from the SPECIAL or EVENTS EXECUTE PROGRAM function. Please note that RCCMD should always be additionally configured in the “UPS Battery low” Event and if the Event “UPS/shutdown imminent....” is used, RCCMD must always be located before the “shutdown UPS in default seconds” command. For moving the command lines, “click” with the left mouse on the line, hold the button and now move the command.
Send email	Sends an E-mail. Please enter the E-mail address and the corresponding text into the field. Please note that you need a configured SMTP server on the RCCMD client computer. A RCCMD message is send to the client computer, which make RCCMD client to start the Qblat module with an e-mail. The RCCMD client computer is therefore acting as e-mail relays.

Send RCCMD EXEUTE to remote client	This action initiates the execute.bat on a defined remote client (IP-address). This bat file can be configured individually by the user. The user may execute a random program on the remote client computer, where the execute.bat is located. It is also possible to attach parameters, whereas these parameters must be added to the execute.bat which is executed as described above.
Send RCCMD MESSAGE ID to remote client	In this menu the user can send an ID from the messages.dat to other users. These IDs are set to default in the UPSMAN directory originally, but the text entries can be altered with an editor. The edited text is then given out in a textbox.
Start Alarm Beeper with Message box	This event function displays a message box with an acoustic warning on the screen, if a certain configured event occurs. The acoustic signal stays active until the return key is pressed.
Send RCCMD MAIL ID to remote client	Similar to RCCMD message ID, a message ID is send, which is then send as an e-mail to the corresponding receivers. The user can pick the ID message at random, whereas an editor can be used to alter the default ID messages in the messages.dat.
Send RCCMD MAIL TXT to remote client	Like the send e-mail function, an e-mails send to configured receiver and the text content is entered by the user a plain text in the function field configuration.
Send RCCMD LOG TXT to remote client	A text is send to the remote client, which is written into the log file of he RCCMD client computer.
Send RCCMD LOG ID to remote client	Similar to the message ID, a message ID is send from the messages.dat, which is then written into the log file of the defined RCCMD remote client. The user may choose a random ID from the file. Again, an editor can be used to modify message IDs in the default messages.dat.
Send RCCMD MESSAGE to remote client	In this menu the user can connect and configure a text message with a RCCMD event. Text messages maybe send to RCCMD receivers. It

	is possible to send a RCCMD 2 message from the CS121 to a Windows 2000 or Unix computer, which then transmits these messages as “net send” and “wall” to the network. The problem of sending messages to different operating systems is now solved.
Execute Program	Executes a configured program. Please enter the full path to the executable file. Is the desired executable in the same directory as the upsman.exe or *. nlm, no path entry is necessary. The handling of other variables is explained further on in this chapter.
Write to Log file UPSLOG.CSV	Writes the Event into the local log file of the UPSMAN computer
Send default messages IDs from file messages.dat	Sends pre-set network messages, using the receiver name and message id. This standard message can be configured in the "message.dat" Open the file with an editor (e.g. Ultraedit) in order to change or check the text of the corresponding message ID. A separate "send message" job has to be inserted for every user, if messages should be send to several users.
Write to MS Event Viewer	When a certain Event occurs, an entry into the Windows NT/2000/XP event viewer system program can be made in addition to the UPSMON event log file (upslog.csv). The event jobs in the UPS-Management software can therefore be integrated if e.g. a warning message during a power fail should be written to the event viewer. The user can utilise the Windows standard event viewer entries by choosing the type (informational, warning and error) and by adding text to the event viewer entries also. Entry EVENTVIEW. The list of the default entries for the Microsoft event list, can be changed, deleted or extended up on demand in the configuration. Fixed messages/entries in the Microsoft event list are:

	Information 8 Upsman Stopped Information 7 Upsman Started The following Microsoft event list messages can be deleted or changed (from the default settings): Warning 101 UPS Alarm - Powerfail Warning 103 Computer is shutting down by UPSMAN Warning 104 UPS Alarm - serial communication lost Warning 105 UPS Alarm - overload Warning 106 UPS Alarm - temperature high Warning 107 Computer is shutting down by UPSMAN (battery low) Warning 108 Bypass on Information 109 UPS - Backup to online mode Information 102 UPS back to online mode Figure 17 Microsoft event list
Send RCCMD trap message by ID	This function enables UPSMAN /RCCMD2/UNMS traps, which show the UPS status as a trap message. If activated it will display a local message when the UPS status of the UPSMAN/RCCMD server is changing. This function will display a message from the ID file (messages.dat), which can selected via the browse button in the insert function menu. (This function is only available for UPSMAN 5.2.6.7x or later) Please also note that the “RCCMD/UNMS trap enabled“ box is activated in the RCCMD Wizard on RCCMD clients and in the UPSMAN configuration under “SYSTEM”.
Send RCCMD trap message	This function enables UPSMAN /RCCMD2/UNMS traps, which show the UPS status as a trap message. If activated it will display a local message when the UPS status of the UPSMAN/RCCMD server is changing. (Attention: this function will not be executed in the order entered with the other insert functions and is only available for UPSMAN 5.2.6.7x or later) Please also note that the “RCCMD/UNMS trap enabled“ box is activated in the RCCMD Wizard on RCCMD clients and in the UPSMAN

	configuration under “SYSTEM”.

3.2.5 e-mail to SMS

In order to send a SMS message as an event message, the E-mail to SMS method is recommended. This method is nowadays standard in most GSM networks and very reliable compard to Modem solutions. Please refer to the examples configurations.

Using this method, an E-mail address of a mobile phone user is configured as receiver and the UPS event messaging is achieved as an SMS on receiver side.

Examples

GSM Provider T-Systems D1

Receiving

e.g. your D1 E-mail address will be D1Nr.@t-d1-SMS.de (e.g.:01711234567@t-d1-sms.de) Please note that you enable receiving E-mail on your phone. This is done by sending a SMS with the message “OPEN”, to the number 8000.

Sending:

In order to send a SMS via mobile phone to E-mail addresses worldwide, please attach the E-mail address of the receiver at the beginning of the SMS message to be followed by the actual message.

It is possible that some characters of an E-mail address may not be entered via mobile phones. The following list give alternatives and replacement characters.

Alternatives:

“at“ character @	wildcard *
Under score _	double minus sign –

Up to now, only the subject or the text field of the E-mail have been transferred as a SMS. 160 characters from the subject and text field, will now be send generally.

If the message has been sent from a D1 mobile phone, the reply function of the mail program can be used. The message starts with “Re:” or “AW:”. The D1 system will recognise the command and transfer the content of the text field as SMS.

Is the e-mail the answer to an SMS that is originally from your phone, the content of the reply-to field of the E-mail program will be transferred as sender address. Other e-mail programs will transfer the data of the original field in the envelope of the e-mail –if not present- the content of the “from” field as sender address.

Close Gateway:

Important: please note that when receiving E-mail via D2 Message Plus, costs will occur. If you want to stop receiving e-mail, please send a SMS to the number 8000, with the text CLOSE.

(If at a later time you want to enable the e-mail transfer again, just send a message to the number 8000, containing the text OPEN, as described above.)

GSM Provider D2

Receiving

e.g. your D2 E-mail address will be D2Nr.@D2-Message.de (e.g.:01731234567@d2-Message.de) Please note that you enable receiving E-mail on your phone. Sending a SMS with the message “OPEN”, to the number 3400 does this.

Sending

In order to send a SMS via mobile phone to E-mail addresses worldwide, please attach the E-mail address of the receiver at the beginning of the SMS message to be followed by the actual message.

It is possible that some characters of an E-mail address may not be entered via mobile phones. The following list give alternatives and replacement characters.

Alternatives:
“at“ character @ wildcard * Under score _ double minus sign –

Up to now, only the subject or the text field of the E-mail have been transferred as a SMS. 160 characters from the subject and text field, will now be send generally.

If the message has been sent from a D2 mobile phone, the reply function of the mail program can be used. The message starts with “Re:” or “AW:”. The D2 system will recognise the command and transfer the content of the text field as SMS.

Is the e-mail the answer to an SMS that is originally from your phone, the content of the reply-to field of the E-mail program will be transferred as sender address. Other e-mail programs will transfer the data of the original field in the envelope of the e-mail –if not present- the content of the “from” field as sender address.

Close Gateway:

Important: please note that when receiving E-mail via D2 Message Plus, costs will occur. If you want to stop receiving e-mail, please send a SMS to the number 3400, with the text CLOSE.

(If at a later time you want to enable the e-mail transfer again, just send a message to the number 3400, containing the text OPEN, as described above.

GSM Provider E-Plus

Receive:

Please send a SMS to the following number: S-M-S-M-A-I-L (7676245)
Please enter the text: START only. You will be sent an SMS with the following information: Ihre e-mail Adresse lautet: 0177xxxxxx@smsmail.eplus.de (Your e-mail address is: ....)

Sending:

In order to send an e-mail from your mobile phone, please enter the address of the e-mail account in the format: username@providername.xx.

It is possible that some characters of an E-mail address may not be entered via mobile phones. The following list give alternatives and replacement characters.

Alternatives:
“at“ character @ wildcard * Under score _ double minus sign –

Up to now, only the subject or the text field of the E-mail have been transferred as a SMS. 160 characters from the subject and text field, will now be send generally.

Up to now, only the subject or the text field of the E-mail have been transferred as a SMS. 160 characters from the subject and text field, will now be send in general. In order to do this, the text “Body#” should inserted in the subject line of the e-mail and the message can now be written in the text field. However, sending more than 160 characters is not possible.

Close Gateway:

Please send an SMS to the number: S-M-S-M-A-I-L (7676245) Please also enter the text message text „STOP“. You will now receive the following confirmation: “E-Plus Info: Ihr Handy is für den e-mail Empfang gesperrt.

Please repeat the procedure from above, if you want to receive e-mails again.

Die standard setting of the e-mail incoming gateway is „STOP“ for all E-Plus users. In this setting you can only send e-mail, but not receive e-mail.

E-Plus has no information, what the current gateway status of its customers is.

Other providers

Please ask your mobile phone network provider for information about e-mail to SMS settings.

3.2.6 Example Job configurations

The number of available events and jobs are both dependent on the UPS and other devices that are possibly installed like a Tempman or SensorManager. Although each event and job is different the general configuration process for each job is the same. Different event files can be saved and loaded for backup purposes or for simply having alternative configurations. In general, most every job can be broadcasted and relayed from a machine within its own segment.

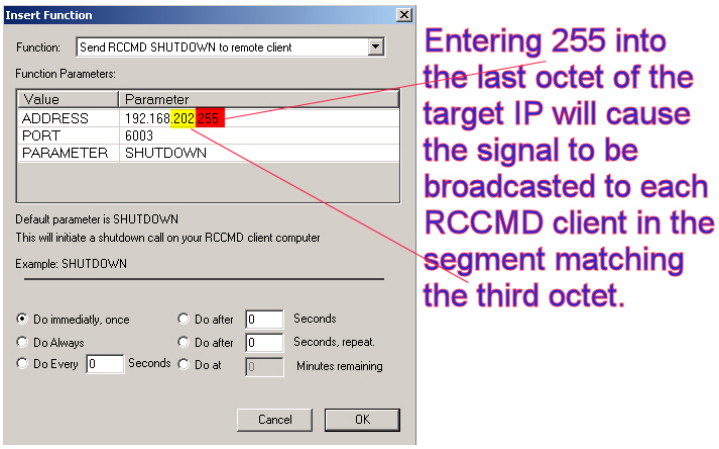


Figure 18 RCCMD signal broadcast

When the target of the command is “USER” and not “Address” the following entries can be made:

```
Value    Parameter        Description
USER     username         sends the message to the
connected user
USER     *                sends the message to every
connected user
USER     /domain:*        sends the message to every
connected user
USER     local            prints the message to the
server console
```

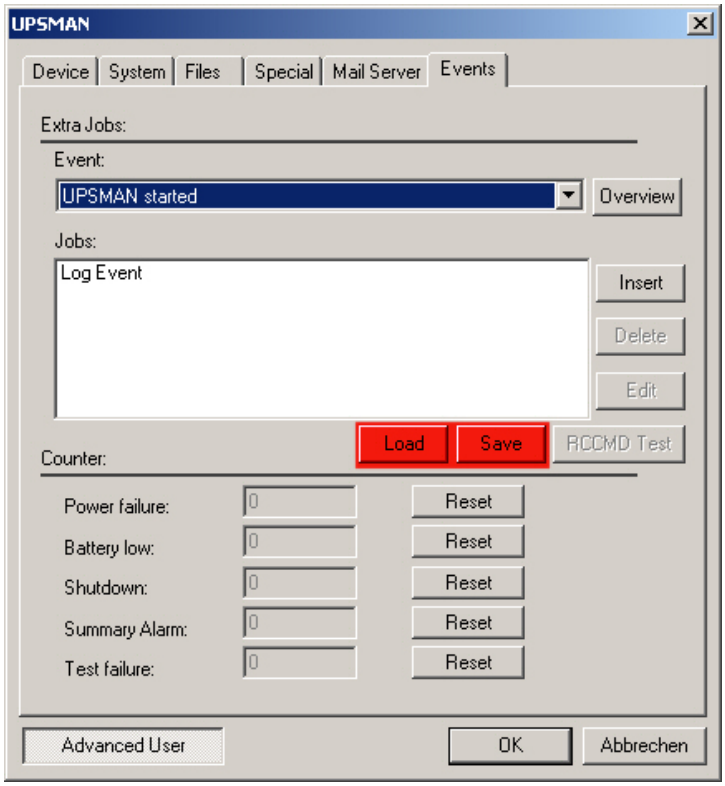


Figure 19 Load Save jobs

To set-up a job for an occurring event, the following steps are as follows:

Start the UPSMAN configuration.

Click the ADVANCED button and enter the Events tab.

Double click any of the events to open the Extra Jobs dialogue.

The Jobs list can be altered by clicking either, Insert, Delete or Edit.

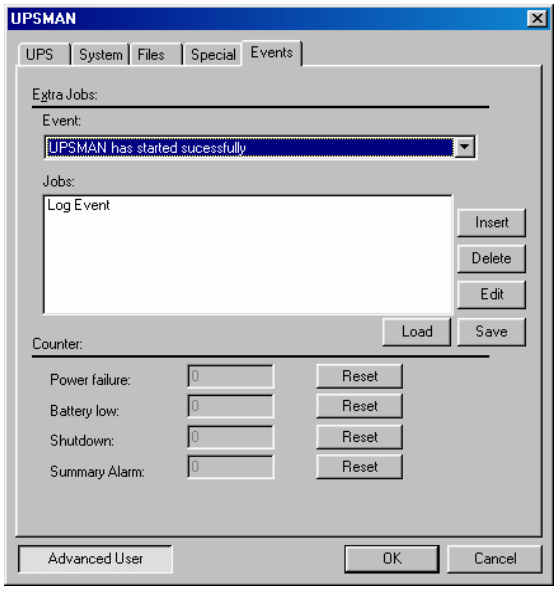
The buttons Insert and Edit open the Insert Job dialogue.

The following examples explain the usage of a few different jobs for becoming familiar with the system.

3.2.6.1 Execute program with parameters

Creating a load statistic via UPS EVENTS on Windows 95/98/NT/2000

The log file Datalog.csv constantly creates the current MS-Excel compatible log file with all important UPS data and can also be extended or adjusted via the messages.dat ID 700 file (single-phased UPS) or messages.dat ID 800 (three-phased UPS). In the following example, how load statistics can be configured.



On the register card Events, please choose the Event "*UPS has started successfully*". Next click on the *Insert* button, right of the Job field.

Figure 20 Insert job instructions

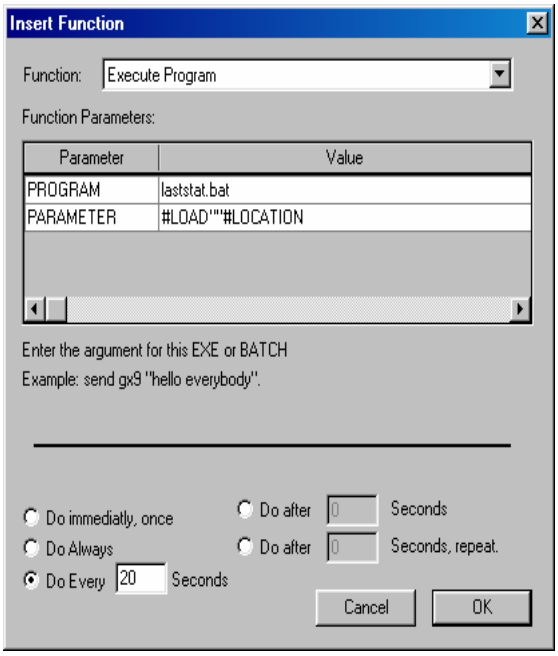


Figure 21 Execute program

Please choose the function "Execute Program". Enter the name of a batch file in the field (here laststat.bat) PROGRAM. The field PARAMETER should be filled with the variables #LOAD (connected to load to the UPS) and #LOCATION. Enter the full path to the executable file. Is the desired executable in the same directory as the \UPSMAN no path entry is necessary. The bottom part of the dialog contains the buttons for the configuration of the time and how often the execution of the configured function is done.

Please note that when entering several parameters, every parameter has to be separated by a set of quotation marks separated by one space " " “. See the following example:

#LOAD“ “#LOACATION“ “#INVOLT

At the beginning and at the end no " " " are allowed! The " " " are only for separating the variables.

By clicking of the OK button the configured function is allocated to the chosen Event.

Before starting the UPSMAN service, please create the file "laststat.bat" via e.g. NOTEPAD.EXE

The content of this bat file may look like the following:

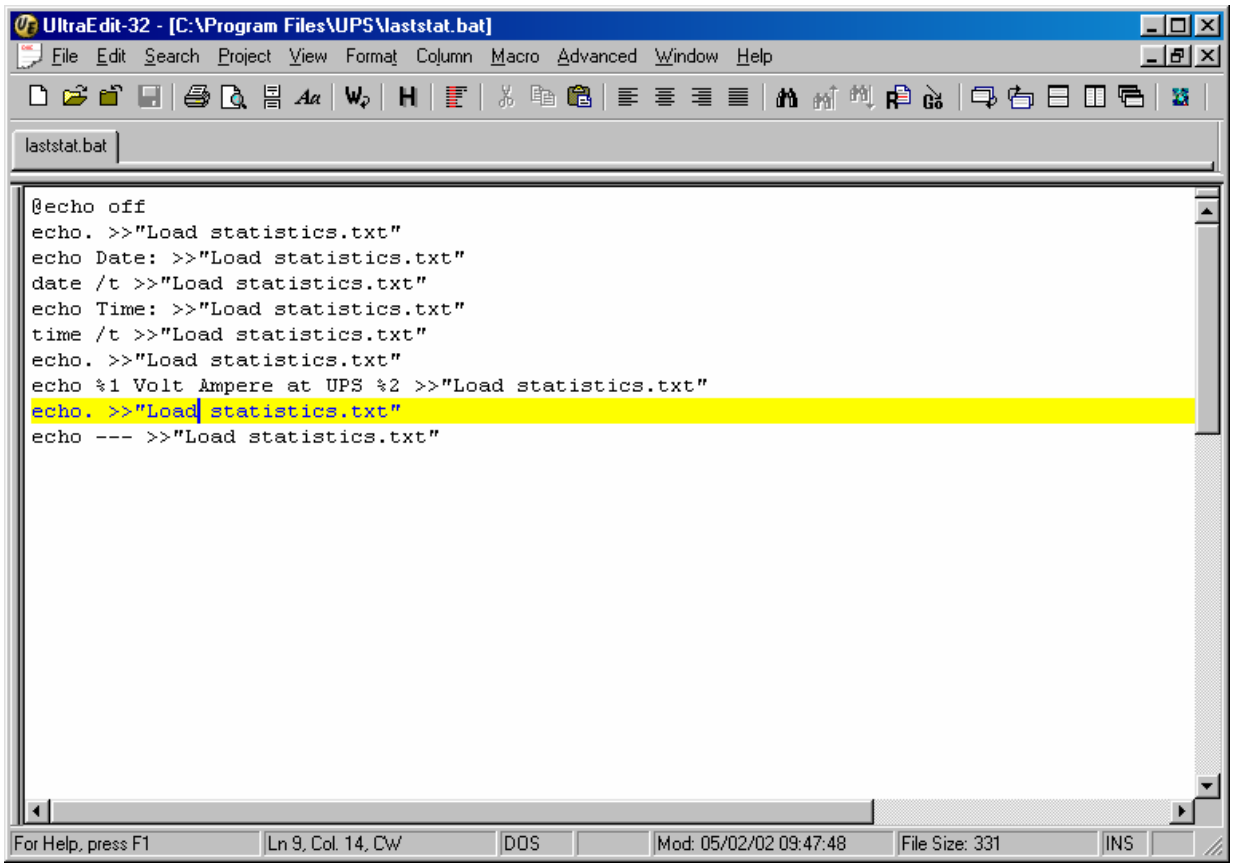
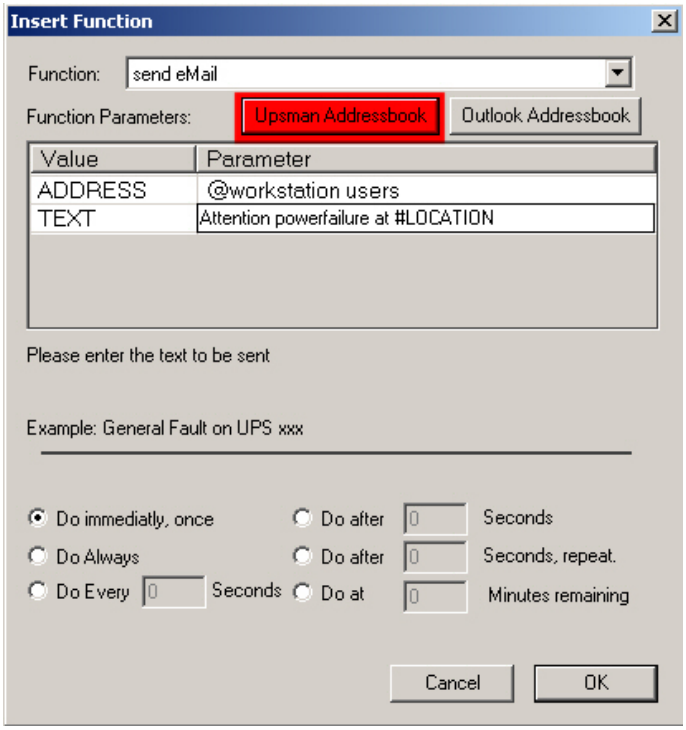


Figure 22 Laststat.bat using an text editor

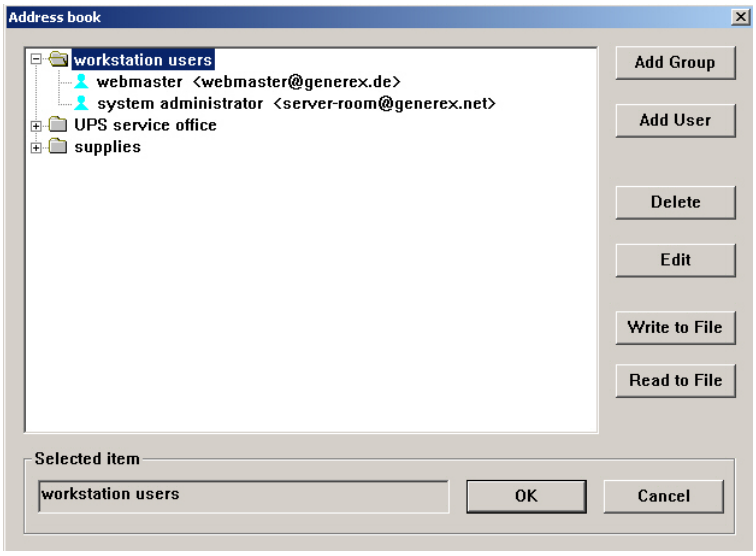
Start the Upsman service. If you have followed the above example now every 20 seconds the file "Load statistics.txt, containing the current values of the UPS load, is created and updated.

3.2.6.2 send Email



The send email job can send notifications to receivers or receiver groups defined in either the Upsman address book or the Outlook address book. The text of the email can be filled with information contained in the system variables of Table 1 System Variables on page 43.

Figure 23 send email



The UPSMAN address book makes it easy to organise recipients into groups. The read and write function allow the user to make back ups of the address book.

Figure 24 UPSMAN address book

3.2.6.3 RCCMD Mail ID

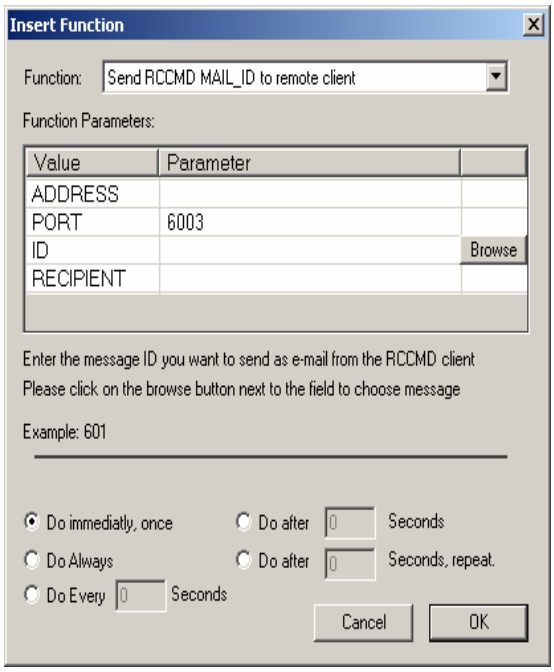


Figure 25 RCCMD mail example

With this function an e-mail is send from the RCCMD client, which includes a defined message ID from the user. Please enter the IP address or hostname of the RCCMD client in the field “ADDRESS”. In the field “PORT” the port should be entered on which the RCCMD client is receiving RCCMD signals. The standard port is 6003. The message ID can be selected by clicking on the “Browse” button. Please also check the following screenshot:

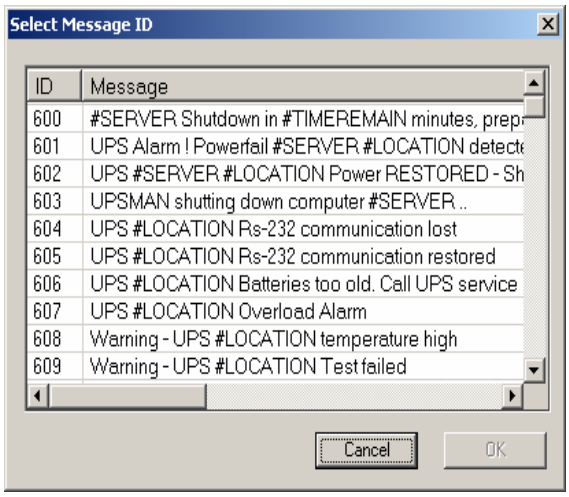

Select Message ID
ID
Message
600 #SERVER Shutdown in #TIMEREMAIN minutes, prep
601 UPS Alarm ! Powerfail #SERVER #LOCATION detect
602 UPS #SERVER #LOCATION Power RESTORED - Sh
603 UPSMAN shutting down computer #SERVER ..
604 UPS #LOCATION Rs-232 communication lost
605 UPS #LOCATION Rs-232 communication restored
606 UPS #LOCATION Batteries too old. Call UPS service
607 UPS #LOCATION Overload Alarm
608 Warning - UPS #LOCATION temperature high
609 Warning - UPS #LOCATION Test failed
Cancel
OK

Figure 26 message ID example

In the row „Recipient“ the e-mail receiver is entered, which will then receive a message ID in form of an e-mail. This function can also be used to inform the system administrator about a e.g. power failure or similar. In the window above the user can also adjust as to when (within the event) the function should be executed. Again, an editor can be used to modify message IDs in the default messages.dat.

For all RCCMD actions the following is valid: If an IP address as “address” is entered, using the “Insert“ function, it is possible to send messages or execute event actions on/ to all recipients in the subnet by adding (.255) e.g. 192.168.255.255.

3.2.6.4 Send RCCMD execute to remote client

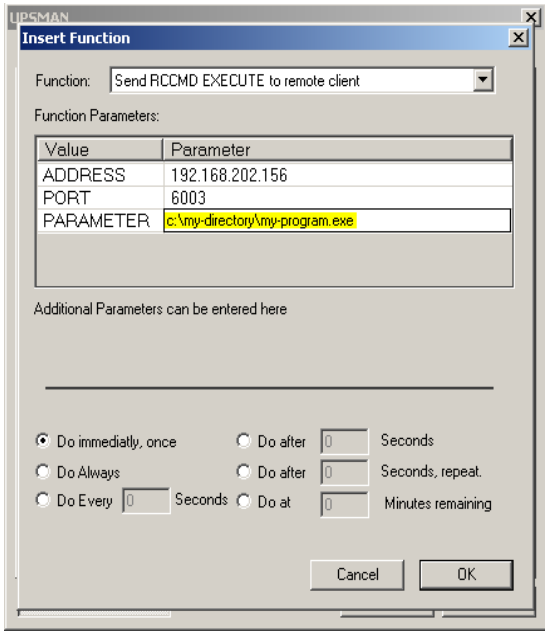


Figure 27 RCCMD execute example

This action initiates the execute.bat on a defined remote client (IP-address). This bat file can be configured individually by the user. The user may execute a random program on the remote client computer, where the execute.bat is located. It is also possible to attach parameters, whereas these parameters must be added to the execute.bat which is executed as described above.

In this example the execute.bat file is executed on remote client (IP Address 192.168.202.156), on port 6003. The entry made in the parameter field will be sent from UPSMAN as a parameter to execute.bat and in this way “my-program.exe” is started.

3.2.6.5 WOL

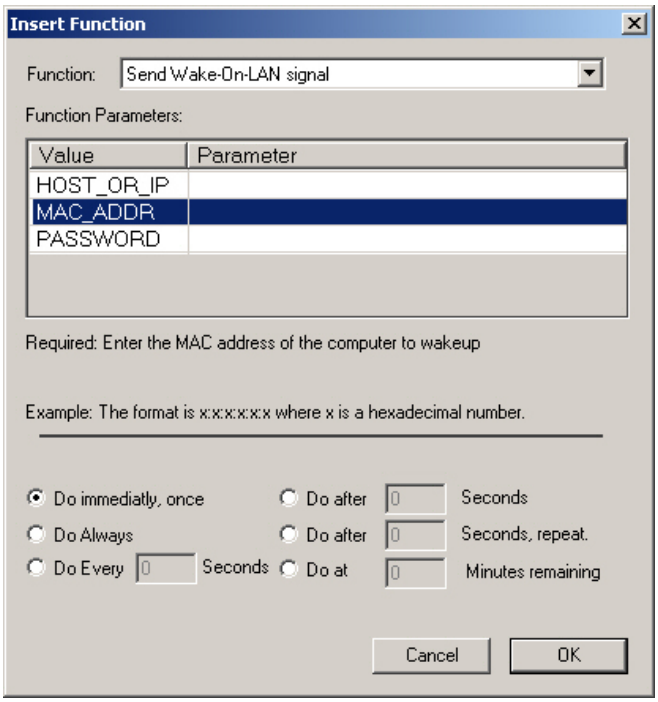


Figure 28 Wake-On-LAN signal

This job will cause hibernating or sleeping computers to go back online. The receiving computers of this signal must have network cards, and operating systems that support this function. The Mac address can be determined in dos consoles by entering the command:

ipconfig /all

at the dos prompt.

3.2.7 Executing own scripts: Examples variables

The transfer of internal variables of the UPSMAN to self-created batch files is possible with the UPS-Management software. The normal batch file programming is used for this. In the batch file the values can be selected with %1, %2 etc as usual. The definition is created directly in the JOB

Example I:

”net send GX9 UPS autonomy time #AUTONOMTIME”

This entry in the JOB sends a network message to GX9 with the information on #AUTONOMTIME, which is transferred directly from the UPSMAN.

Example 2:

”net send GX9 autonomy time #AUTONOMTIME minutes Battery Capacity #BATTCAP %”

This entry in the JOB sends a network message to GX9 with the information on UPS Autonomy time and battery capacity, which are transferred directly from the UPSMAN. The receiver GX9 gets this: ”message from GX 0 to GX 9”: ”Autonomy Time 46 minutes battery capacity 85.000 %”

Example 3 :

JOB Power fail: c:\ups\mybatch.bat #AUTONOMTIME #INVOLT #OUTPOWER

This entry defines #AUTONOMYTIME as ”%1”, #INVOLT as ”%2”, #OUTPOWER as ”%3” etc. In the batch file itself, the following can be configured:

Mybatch.bat

Net send * ”Power fail at UPS detected!!”

Net send <USER> ”Power fail! Inputvoltage %2 Volt, only %1 minutes left!”

Every UPSMAN provides at least the following *variables*

Variable	Function
#OUTPOWER	Actual load in % at the
#OUTPOWER	Actual load in % at the
#TEMPDEG	Actual UPS temperature in Celsius
#AUTONOMTIME	Actual autonomy time in minutes
#LASTTSTBUPT	Last tested BACKUPTIME (UPS test) in minutes
#STATUS	Actual UPS Status in minutes

#LASTERR	Last error
#TIMEUNTILSHTDWN	Actual Remaining time (remaining battery time until SD)
#RUNTIME	Actual Remaining time (remaining battery time until SD)
#INCURR	Voltage input power
#BATTVOLT	Battery load in Volt (V)
#INFREQ	Input frequency in Hz
#OUTFREQ	Output frequency in Hz
#CNT_PF	Counter for power failure
#CNT_BL	Counter for battery low
#CNT_SD	Counter for shutdown
#CNT_SA	Counter for summary alarms
#CNT_TF	Counter for test errors
#INVOLT	Current Input voltage in Volt (V)

Table 1 System Variables

For the special UPS integration into the UPSMAN software, more variables can be provided. Please ask your UPS dealer/manufacturer for more information on additional variables.

3.2.8 Start the UPS-Management Software

Upsman.exe is a Windows service/ Windows 95/98 application. The configuration parameter are read from the Windows registration database.

Please start the *upsman.exe* via the control panel with the help of the service icon. Alternatively start the UPSMAN with a command line: *net start Upsman*. To use the UPSMON (graphical interface), please install the TCP/IP protocol on your system. When using just Windows NT, ”NT pipes” can also be used.

Attention: **Windows 95/98 always needs a TCP/IP installation, if the UPSMON module is used.**

Upsman.exe can also be started from the command line as foreground process. The following parameter are supported:

-install installs the UPSMAN as a service

-remove uninstalls the UPSMAN service

-config starts the configuration program

-libver shows the version release of the UPSMAN

-debug starts the UPSMAN as foreground process (not as service) and displays windows for error function analysis. In addition a “line.raw” file is created, which logs the entire communication between COM port and end device. The file can be decoded by your service in order to track down errors.

In order to allow an automatic start of the UPSMAN module at server boot; please set the service start-up status in the control panel to automatic. (=default for Windows NT/95/98)

In case the service needs to be removed or deactivated, please change the start-up status in the control panel section SEVICES to manual. In case an automatic start under Windows 95/98 is not wanted, please enter the command line: *Upsman -remove* or deactivate via the corresponding icon "UPSMAN Remove".

In order to reinstall the service after removing it, please change to the UPSMAN directory and enter the command line: "UPSMAN.BAT". The UPSMAN service is now reinstalled and the configuration program will start.

3.2.9 Multiple installations under Windows NT /2000/98/ME

Please insert the CD and start setup.exe, if the automatic start does not work.

Enter the first CD-Key for your 1st UPSMAN Installation. The UNMS and/or UPSMON tools can be installed if needed.

Continue the installation and start the configuration program. Configure your UPS but answer the question to start the service with "NO”.

Use the Windows Explorer (or similar tool) to rename the UPSMAN path into UPSMAN2.

Please open the file UPSCFG.INI in the UPSMAN directory with any Editor and change the path to your new directory name.

Restart the SETUP from your CD

Enter the 2nd license key code.

Install UPSMAN only this time, using the same directory as before (default). When the configuration starts, do not configure anything, simply press OK and do not allow to start the service.

Open a DOS prompt and change to the UPSMAN-Directory. Enter „Upsman.exe –remove“ <Enter> and after this „Upsman –install –n1“ <Enter>. Start the configuration program with „Upsman –config –n1“ <Enter>. Now press again OK and do not start the service, (you do not have to configure your UPS now, this will happen later.)

Please open another DOS prompt and change to your UPSMAN2-directory. Enter „Upsman –install –n2“ <Enter>. Start the configuration program „Upsman –config –n2“ <Enter>. Now press OK and do not start the service, (the user does not have to configure your UPS at this stage!)

Please start the REGEDIT.EXE

(For NT/2000/XP OS only) Change in REGEDIT to

HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Services. Here the user will find 2 UPSMAN-entries. Delete the extensions –n1 and –n2 in the ImagePath.

Open any editor and change in both directories UPSMAN and UPSMAN2 the file UPSCFG.INI. Please change the setting „Registry=1“ to „Registry=0“. Please save both changes.

It is possible to configure both services via a DOS prompt using the command „Upsman –config“ <Enter> from any directory. Note: make sure that every UPSMAN has a different com port and listen port (for UPSMON connection). Please confirm your settings with OK. You will not be asked to start the service.

(For NT/2000 OS only) Please start both services via the control panel – services. A start via command line using “NET START UPSMAN –n1 or –n2” is not possible.

If the user wants to use the UPSMON; the UPSMAN can reached via the corresponding IP address and the listen port, Example: Enter in UPSMON “127.0.0.1:5770“ for a UPSMAN running with listen port 5770.

The user can also create links from your desktop to avoid the configuration from the DOS prompt.

In order to remove the services: Enter from a DOS prompt of every UPSMAN directory „Upsman –remove –n1“ <Enter> or „Upsman –remove –n2“ <Enter>.

3.2.10 UPSMAN directory

The local UPSMAN directory contain send.bat, log file entries, messages.dat which are part of the event configuration, are file is existing. Using a editor all of these files can edited and modified. The event configuration however enables a complete configuration of these files.

3.2.11 Stop the USV-Management Software

In order to stop the UPSMAN service, a command line with the command: *net stop Upsman* can be entered. Also, the control panels (services) in the Windows 95/98 UPSMAN Icon in the status panel can be used.

3.2.12 RCCMD for Windows NT/2000/XP

The RCCMD (remote console command) is a program that allows the execution of programs on remote computers. This tool is part of all UPSMAN supported operating systems with the exception of Windows 3.x.. With this tool it is possible to connect different operating systems. Is the UPS-Management Software installed on a Windows NT/2000/XP computer and should a remote shutdown be executed on a computer with a different operating system in heterogeneous network, the RCCMD tool is necessary.

RCCMD Version 1 can only send a shutdown signal, whereas RCCMD version 2 can also act as a message gateway between different operating systems and RCCMD version 3 has redundancy functions (see 3.2.16 RCCMD 3 group redundancy settings).

The RCCMD tool works in two different modes. The module works like a normal program start, as "Send mode" in order to send RCCMD commands –s –a to other computers. In the so-called ”Listen” mode, installed as a NT/2000/XP service, the program (as background process) waits for a command from the ”Send” mode, of the RCCMD module. In the ”Listen” mode the RCCMD module waits for the ”ping” signal. After reception of this signal the module executes a batch file or program.

Attention: **For first time users we do recommend the use of the RCCMD Wizard, which makes the configuration easier. Please start the RCCMD Wizard from your program group.**

Attention: **Please do not use the wizard and manual settings at the same time.**

Eventually, the RCCMD Service must be allocated with special system priviledges if certain commands and programs like messaging using “net send”, shutting down databeses and the like are to be executed. The RCCMD start-up parameters in the control panel must be set to the administrator /superuser account (enter password twice) together with the correct password. If you are not allowed to use the administrator account you have to create an account who has all the rights to shutdown this NT/2000 computer. Change to the control panel and mark the RCCMD in the list, change the start-up parameters to ”this account” and enter the any administrative account.

Now the RCCMD has been installed and configured to execute C:\ups\shutdown.bat.

3.2.13 RCCMD on Windows 95/98

RCCMD for Windows 95/98 functions similar to RCCMD on Windows NT. The only difference is the program name, which changes to RCCMD95.EXE. Please also refer to the RCCMD Windows section of this manual.

Attention: **For Windows 95/98 users we do recommend the installation of the TCP/IP protocol first and then run the configuration program making use of the RCCMD WIZARD.**

Attention: **In case Winpop.exe is used on Windows 95/98, RCCMD can not be started on port 6003 otherwise the computer will hang-up. Please change the sender and receiver call up accordingly.**

Trained users may use the RCCMD Wizard and enter all changes manually. Please check the following: In order to start the RCCMD process in the ”Listen” mode, the RCCMD parameter have to be entered in the registration database. Please enter:

regedit.exe rccmd95.reg or simply start rc_init.bat

The parameters are now located under the registration-key

HKEY_LOCAL_MACHINE\CurrentControlSet\Services\RCCMD95\Parameters

Start *regedit.exe* again if you want to reconfigure RCCMD.

If you are unfamiliar with the registration editor of Windows 95 you can also modify the file *rccmd95.reg* and execute the command *regedit.exe rccmd95.reg* again.

Parameters:

Port Special TCP-Port that receives the RCCMD signal.

Addr1... 10 TCP/IP address of the computer that accepts the RCCMD-signal.

ExecutePrg Command that is to be executed when receiving the RCCMD-signal.

To start RCCMD execute the command:

rccmd95

Or start the program using the Windows 95/98-launch bar.

To start RCCMD in sending-mode (*send*) enter the following line in your shutdown-job:

RCCMD95 -s -a <address> [-p 6003]

For <*address*> enter the TCP-address of the machine to which you want to send the RCCMD-signal.

Optional parameters:

-p <port> TCP-Port on which the RCCMD-signal is sent

The option –a can be used several times, if a shutdown on more remote computers in the network should be executed.

Do not use the CD License key more than once. (Copyright regulations page 1). If more RCCMD modules need to be installed for the shutdown, additional CD license key must be purchased. Additional license keys are available from your UPS dealer, whereas the CD can be used again for the actual installation.

3.2.14 Testing the RCCMD connection

Finally test your configuration if all RCCMDs are present and working. For this you may use the RCCMD in the Debug mode Syntax RCCMD –debug –s/l –a), so that you have screen output. ”PING” every remote computer with the command ”ping [hostname] [IP address]”. If the PING works fine, you can now start to test the RCCMD connection with the Debug mode. If everything works fine, you will see that a connection is established and closed again. This means that the remote RCCMD received your signal. It does not mean that the RCCMD will now executed a program. Please see the following graphic for more information:

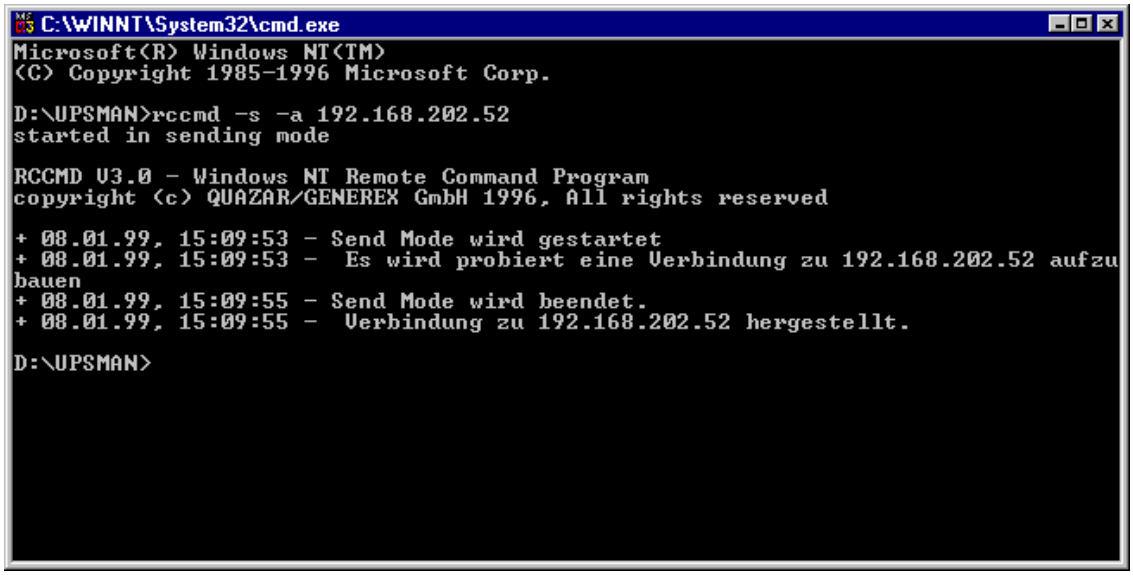

C:\WINNT\System32\cmd.exe
Microsoft(R) Windows NT(TM)
(C) Copyright 1985-1996 Microsoft Corp.
D:\UPSMAN>rccmd -s -a 192.168.202.52
started in sending mode
RCCMD V3.0 - Windows NT Remote Command Program
copyright (c) QUAZAR/GENEREX GmbH 1996, All rights reserved
+ 08.01.99, 15:09:53 - Send Mode wird gestartet
+ 08.01.99, 15:09:53 - Es wird probiert eine Verbindung zu 192.168.202.52 aufzu
bauen
+ 08.01.99, 15:09:55 - Send Mode wird beendet.
+ 08.01.99, 15:09:55 - Verbindung zu 192.168.202.52 hergestellt.
D:\UPSMAN>

Figure 29 RCCMD console test

3.2.15 Testing the RCCMD 2 connection

In order to see under RCCMD 2 if the UPSMAN processes on the remote client are still active, the following syntax can be entered via command line:

Rccmd –sc –ac <IP address> -pc5769

If the UPSMAN is active, the message “UPSMAN <IP address> alive”. There is no message if the UPSMAN is inactive.

```
C:\RCCMD>rccmd -?

usage: rccmd    [param]

      rc_init  install service and set default parameters

param: -i       install service

      -u       uninstall service

      -v       display version info

      -debug   start as a console app for debugging (listenMode)

      -bs filepath  set filepath for shutdown-event (listenMode)

      -ba filepath  set filepath for upsmanNotAlive-event (listenMode)

                  (ATTENTION: this will override registry-settings)

      -s ...   start as a console app for sending mode

      -sc      check upsman

      -cr      connect retries for every check (default 5)

      -se "command [parameter]" ...

          valid commands: SHUTDOWN, EXECUTE,   MSG_ID, MSG_TEXT

                        MAIL_ID,  MAIL_TEXT, LOG_ID, LOG_TEXT

        ...-a  192.10.200.99 [-a 192.10.200.98] (max. 15)

          -ac ...  [-ac ...] upsman adress (max 15)

          -p[r] portaddr rccmd (default 6003)

          -pc   portaddr check-upsman (default 5769)

          -t[r] timeout rccmd  (default 10 sec)

          -tc   timeintervall check-upsman (default 30 Min)

          -rc   max retries for check-upsman (default 0 (infinite)
```

3.2.16 RCCMD 3 group redundancy settings

The Windows version of RCCMD version 3 allows users to mix and gather up to any 4 UPSMAN managed UPS in the local network into a grouped redundant UPS system. This way even UPS systems from different manufacturers can be turned into one parallel redundant unit. Simply set the “Use RCCMD group/redundancy” check box during set-up.

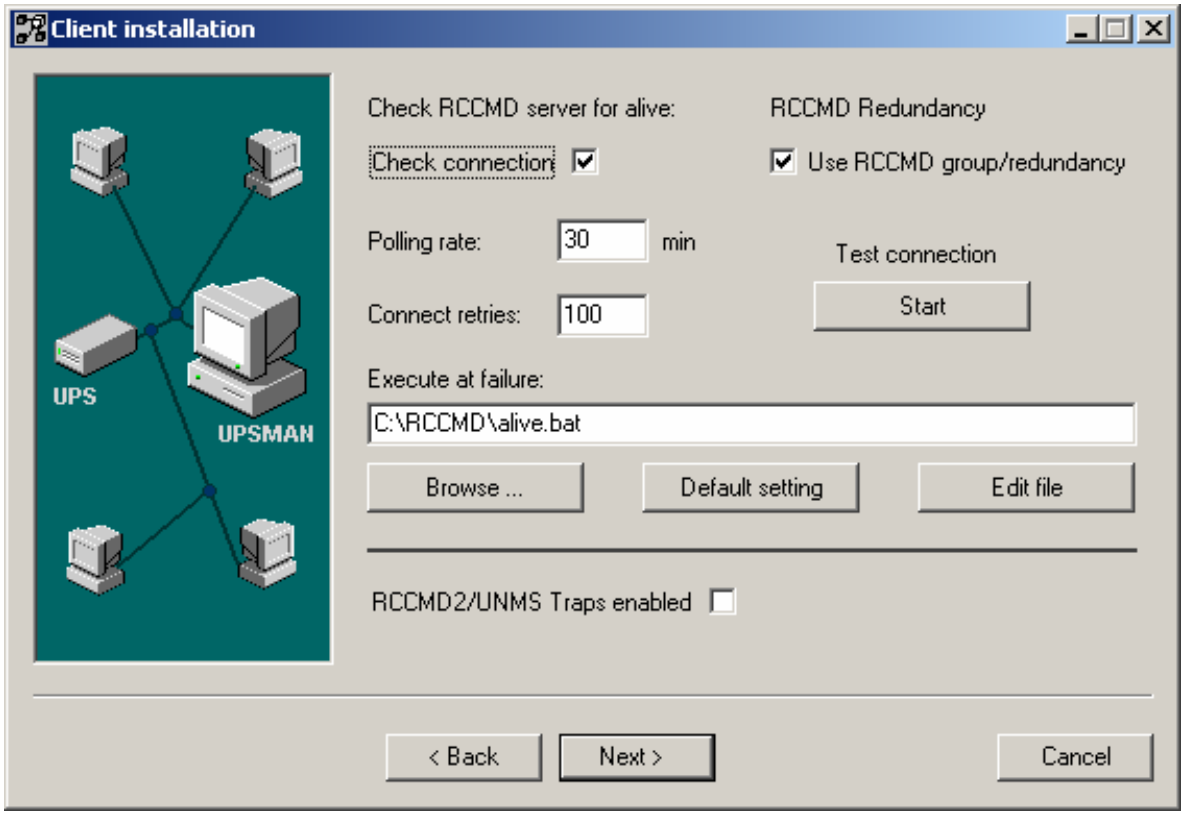


Figure 30 RCCMD Redundancy check box by the RCCMD v.3 set-up

In the next step of the installation the set-up will automatically scan the network for UPSMAN servers and put their IP addresses into the selection window.

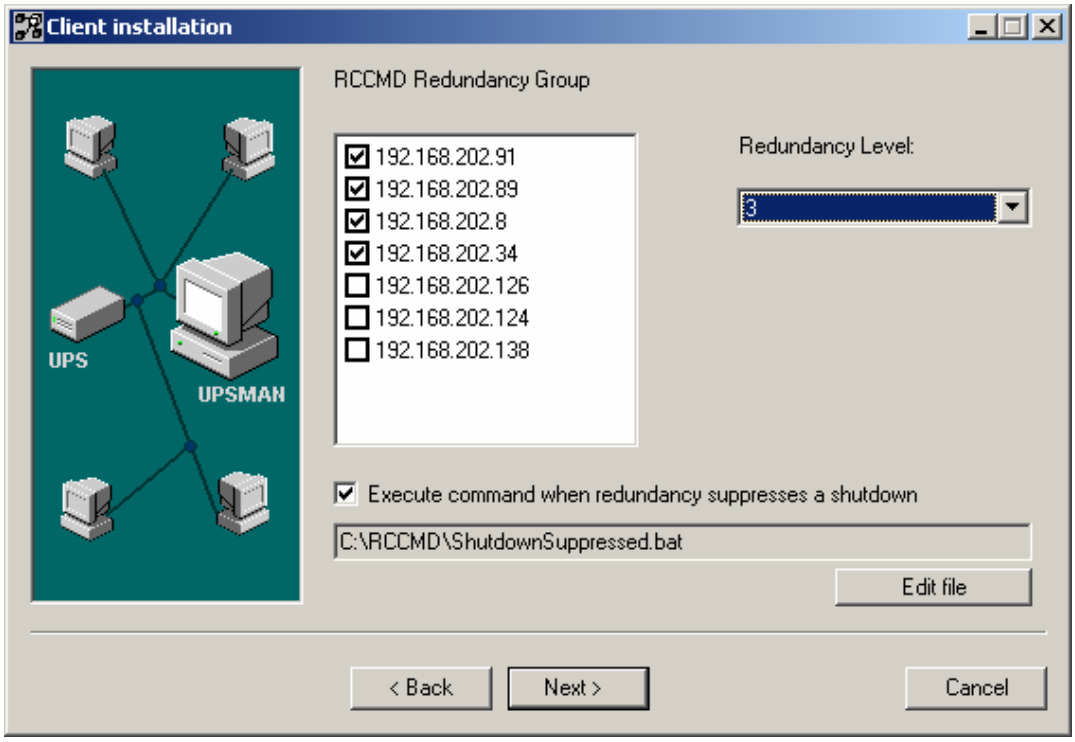


Figure 31 Setting up the RCCMD Redundancy group during set-up

Simply select up to four different UPSMAN IPs and the Redundancy Level for the shutdown suppression condition. Setting the “Execute command when redundancy

suppresses a shutdown" will cause the RCCMD services to enact either the default ShutdownSuppressed.bat or another user defined command when a received shutdown command from one of the UPSMAN servers has been suppressed.

3.2.17 Shutdown.bat file (example)

Now you have to check that this batch works properly: The shutdown.bat of the RCCMD may look like the following on NT. On other platforms a UNIX "init 0" or Novell "DOWN" is executed. On Windows NT/2000 the SHUTCMD.EXE tool is used or any other NT shutdown program. Call Shutcmd -? for Syntax help.

An example SHUTDOWN.BAT is copied into the UPS directory, which will assist you further.

ATTENTION:

If your configuration works fine in the DEBUG mode, does not necessaryly mean that it works also with the RCCMD as NT service. Please ensure that the RCCMD as service has been started in a user account with administrative rights, otherwise it may happen that only non-restrictive programs may be executed (like notepad.exe) but no Shutdown. (This will result in the NT error message "Adjust Token Privileges failed".) If a program has in fact started or not can be seen in Taskmanager window (ALT+CTRL+DEL), because a service does not a started program in the current user session due to non-interactive transaction with the desktop.

The full command syntax for the NT consol for RCCMD in <Listen mode>:

rccmd [–debug] -l [-a IP adress] [–h hostname] [-p port] "command"

where the option in brackets are optional. The command can be either a program or a path for another batchfile to be found on this computer. The command file should be given with full path. The -p port option can be included if you want to start rccmd more than once at a single computer to proceed different commands for different events. The default port number is 6003, use any other availabe port number for different RCCMD commands.

RCCMD in the send mode :

rccmd [–debug] -s [-a IP adress] [-h hostname] [-p port]

This command is regularly used in the Senders batchfile (Shutdown.bat) and sends a "ping" to the computers IP adress or hostname. If this "ping" has been transferred, the next command RCCMD –s may be executed, etc.

3.2.18 RCCMD client as relay station

In order to reach a bigger number of RCCMD receivers, the adapter needs to be operated as relay station. The receiver will be configured so that it will receive a RCCMD signal and this signal is then used to start a batch file, which then starts even more RCCMD sender

signals. This computer is then sender and receiver at the same time and is therefore an important link in the UPS monitoring chain. Generally the use of an RCCMD client as relay stations makes the management of several 100 RCCMD clients far easier than configuring this via the Webbrowser interface of the CS121. Additionally, all Webbrowser Event configurations have a certain limitation so that you have to use the relay function if the number of jobs exceed e.g. 50 per event at the CS121 HW 131, at older CS121s even earlier.

See the following script, which lets the RCCMD-client act as relay station:

```
@ECHO off
REM --- Created by RCCMD configuration ---
SET path=C:\WINDOWS\;C:\WINDOWS\system32\;C:\RCCMD
SET path=%path%;C:\RCCMD\
RELAY RCCMD
# This batch will send RCCMD shutdown calls to the the IP adresses liste below
# At the end of the batch this computer will initiate the local shutdown
rccmd -s -a 191.168.200.5
rccmd -s -a 191.168.200.6
rccmd -s -a 191.168.200.7
rccmd -s -a 191.168.200.8
rccmd -s -a 191.168.200.9
rccmd -s -a 191.168.200.10
rccmd -s -a 191.168.200.11
# to be continued ..
#
# local shutdown
ExitWin.exe shutdown force
@CLS
```

Figure 32a Example: Batch file to let the RCCMD act as relay station

3.2.19 RCCMD in Windows NT/2000/XP only network

In a smaller, plain NT network, it may be useful to shutdown the remote NT computers by using the SHUTCMD.EXE instead of the more complicated RCCMD configuration. But beware that there are several restrictions and security risks:

The user who sends the shutdown call must have an administrative account on all other computers and must have administrative rights.

Any user with this name and the correct password can shutdown any computer at any time from any place.

The following example shows how to install the UPSMAN software on a Windows NT server and configure a shutdown for a second BACKUP NT server in a NT Network:

Create a user with administrative rights on the NT SERVER and also on the NT BACKUP SERVER. This user must have the rights to shutdown the NT SERVER AND the NT BACKUP SERVER.

Install the software as described in the chapter 2 in this manual.

Change to the SPECIAL card in the UPSMAN configuration and change the following parameters: Enable JOB 1 (or 2 or 3) and enter 15 minutes for execution. Delete ”own” and enter the path of your shutdown.bat file: e.g. *c:\ups\upsman\shutdown.bat*. (This will now execute the job shutdown.bat, which closes the NT BACKUP Server at 15 minutes rest battery capacity in the UPS). If you want that the shutdown is initiated simultaneously as the shutdown of the NT SERVER, enter this job in the section FILES. Start the UPSMAN software.

Please enter a job of your desire and test it with the command line. This job can enter in the FILES section in the UPSMAN configuration if it is working. Please use the following syntax:

c:\ups\shutcmd.exe \\NT_BACKUP /T:15 /C /Y "UPS Alarm Remote shutdown !"

If the shutdown works fine, please test it with the UPS. (Force a power failure and wait – or – change the downtime of the UPSMAN for this test to the needed values to perform a shutdown earlier.

3.3 Novell NetWare UPSMAN

General

In order to load the UPS-Management Software onto your Novell-System a MS-Windows 95/98/NT/2000 Workstation is required, which has access to the hard drive of the network server. The UPSMAN files are copied onto the Novell NetWare server when installing from a Windows computer. Please ensure that you have administrator rights on the network drive in order to complete the installation.

3.3.1 Installation Modules for a Windows NetWare Station

The installation of NetWare is executed from a Windows 95/98/NT/2000 Workstation vorgenommen. Please see chapter 3.2.1 Installation of the UPS-Management Software. Please also note that the network drive is connected to the server e.g.: F:\SYS

3.3.2 Configuring a Windows 95/98/NT/2000/XP Workstation

General

The UPS-Management Software can only be configured using Windows 95 or higher. Please compare the chapter 3.2.2 Configuration of the UPSMAN in this manual. In order to get detailed information to certain parts of the configuration.

To start the utility please start Icon in the UPS program group. Instead the file *upsconf.bat may* be started manually from the UPS NetWare directory. Which also starts the configuration.

A detailed description can be found in chapter 3.2.2 Configuration of the UPSMAN

3.3.3 Configuration of JOBS

A detailed description can be found in chapter 3.2.3 Configuration of the JOBS

3.3.4 Configuration of EVENTS

A detailed description can be found in chapter 3.2.4 Configuration: EVENTS

3.3.5 Execution of Scripts

A detailed description can be found in chapter 3.2.7 Executing own scripts: Examples variables

3.3.6 Command syntax for NetWare UPSMAN/ SHUTCMD

upsman.nlm The upsman.nlm is loaded without the command line parameter. E.g. *load sys:ups\upsman\upsman.nlm.* This start line is to be copied into the AUTOEXEC.NCF after testing succesfully.

shutcmd.nlm This modul is used in order to enable a shutdown out of a script from the local server.

shutcmd –f Forces a shutdown

shutcmd -? Help

Beispiel: *load sys:ups\shutcmd.nlm –f* (=immediate local shutdown)

TCP/IP minimal Configuration for NetWare Server

A minimal TCP/IP configuration exists for NetWare Servers. This happens by loading the

tcpip.nlm

with *LOAD TCPIP*. Loading the network card drivers works in this example via a network card and the corresponding driver of the manufacturer epro.lan Syntax:

LOAD EPRO PORT=340 INT=A FRAME=ETHERNET_II

NAME=EPRO_TCPIP

The connection to the IP Protocols to the network card is achieved via:

BIND IP TO EPRO_TCPIP ADDRESS=192.168.10.1

The configuration is now finished.

List of the NetWare loadable moduls (NLM), which are used by UPSMAN: aiocomx, mathlib, aio, snmp, clib, clibaux, spx, ipxs, streams, nwsnut, tcpip, tli, lib0.

After correct installation, autoexec.ncf looks like the following:

search add SYS:\UPS\UPSMAN

LOADING UPSMAN.NLM

load upsman.nlm

RCCMD MULTIPLE SERVER SHUTDOWN CLIENT

THIS SOFTWARE IS OPTIONAL AND HAS TO BE INSTALLED WITH A VALID RCCMD LICENSE CODE

THE FOLLOWING EXAMPLE IS THE STARTUP OF AN RCCMD CLIENT WITH IMMEDIATE SHUTDOWN AFTER

RECEIVED ANY RCCMD CALL FROM UPSMAN/RCCMD SENDER.

LOADING RCCMD.NLM -L(LISTENER) -A(IP ADRESS OF UPSMAN/CS111/RCCMD SENDER) COMMAND(COMMAND TO BE EXECUTED)

EXAMPLE:

LOAD RCCMD.NLM -L -A 192.168.10.2 LOAD DOWN.NCF

load rccmd.nlm -l -a load down.ncf

Long file names:

In order to use long file names on a Netware partition, the following has to be entered using Netware 3, 4 and 5 at the server console:

load long (the module "long" is loaded into the memory)

add name space long to volume sys ("long" is added to the volume "sys")

Please note that the volume name actually has to exist in order for this procedure to work. Please also note that for every volume, the name space has to be added individually.

3.3.7 Command syntax for Novell NetWare System moduls

aiocomx.nlm

The *aiocomx.nlm* is responsible for the proper functionality of the serial interfaces of a NetWare server. This module is often changed by software that uses the serial interface e.g. Arcserve, Faxware. Not using the original aiocomx.nlm in conjunction with UPS-Management Software, that is distributed by Novell, could cause problems, when installing UPS-Management Software. To prevent such problems, it is possible to load for each serial device it´s own aiocomx.nlm from different directories.

aiocomx.nlm <port=W> <int=X> <name=Y> <node=Z> <force> <nofifo> <rxt=A> <txq=B> <maxrate=C>

where, W is the port I/O address (hex)

X is the port IRQ (hex)

Y overrides default board name

Z overrides default board number

force overrides default test which verifies, that a COM port exists

nofifo overrides 16550 to operate in non-FIFO mode

A overrides 16550 receiver FIFO trigger – 1(*), 4 (**), 8, 14

B overrides 16550 transmit FIFO queue – 1(*), 4, 8, 12, 16(**)

C overrides devices capable of higher than rated speed 9600, 19200, 38400, 57600, 115200

(*) Non-FIFO mode setting – 8250/16450/16550 device

(**) FIFO mode default – 16550 device only

Example: load aiocomx.nlm port=0x2f8 int=3 nofifo

3.3.8 Start of the UPS-Management Software

The *upsman.nlm* is started from the fileserver console. Select the system console and enter *load load <volume>:ups\upsman\upsman.nlm* (for *<volume>* enter the name of your volume, e.g. sys). *Upsman.nlm* needs for its execution more Novell standard NLMs. These will be loaded automatically, if there are not already in the memory.

After the start of *upsman.nlm* the program reports it's UPS information status with a status screen and a user menu and the following functions:

display of current UPSMON connections from Windows terminals

ending upsman.nlm

For an automatic start of *upsman.nlm* when booting the system, enter the command *load <volume>:ups\upsman\upsman.nlm* into the *autoexec.ncf*.

After the start of *upsman.nlm* the program reports it's UPS information status with a status screen and a user menu and the following functions:

display of current UPSMON connections from Windows terminals

ending upsman.nlm

For an automatic start of *upsman.nlm* when booting the system, enter the command *load <volume>:ups\upsman\upsman.nlm* into the *autoexec.ncf*.

3.3.9 Stop the UPS-Management Software

Please choose the UPSMAN screen and then Exit. Please ensure that there is no active UPSMON connection when exiting.

The *upsman.nlm* can also be closed by using the command *unload upsman.nlm*. Upon stopping the UPSMAN, the server is not protected anymore.

Attention: **Explanation for the UPSMON modul of the UPS-Management Software can be found in the *How to use UPSMAN* section of this manual.**

3.3.10 RCCMD on NovellNetWare

The following text is presented when entering RCCMD with the help parameter “?” inside a NovellNetWare console:

```
Possible parameters:

 -l
     listen. waits for a command from RCCMD sender

 -s
     sends a ping to a listening program

 -se <command> <param>
     sends a command to a listening program

 -p  <port>
     Portadress (Defaultadress = 6003)

 -a  <ipaddress>
     Address in IP Format. Ex. -a 192.10.20.30 (max.
10)

 -t  <timeout>
     Time in Seconds (Defaulttimeout = MAX_TIMEOUT)

 -?
     this help

Supported Commands (for use with -se argument):

 SHUTDOWN
          This will call the configured shutdown-
batchfile (default: shutdown.bat)
```

```
 EXECUTE
          This will call the execute.bat file

 MSG_TEXT
          This will call the message.bat file
<text, unrestricted word count>

 MSG_ID <ID>
          This will call the message.bat file
<message parameters, seperated by blanks>

 LOG_TEXT
          This will write to configured log-file
(default: rccmd.log) <text, unrestricted word count>

 LOG_ID <ID>
          This will write to configured log-file
(default: rccmd.log) <message parameters, seperated
by blanks>

Examples:

 load rccmd.nlm -s -a 192.10.200.52 -a 192.10.200.53
 load rccmd.nlm -s -a 192.10.200.52 -a 192.10.200.53
-t 10
 load rccmd.nlm -se "SHUTDOWN" -a 192.10.200.52

 load rccmd.nlm -se "EXECUTE" -a 192.10.200.52
 load rccmd.nlm -se "MSG_TEXT this is a message" -a
192.10.200.52
 load rccmd.nlm -l
 load rccmd.nlm -l -a 192.10.200.52 -a 192.10.200.53
 load rccmd.nlm -l -a 192.10.200.52

If you have added a search path i.e.: "search add
sys:rccmd",
otherwise you have to use the absolute path.

 load sys:rccmd\rccmd.nlm -l
```

To start RCCMD in receiving-mode (*listen*) enter the following line:

load <path> RCCMD -l [-a 192.200.100.10] [-p 6003] load <path> shutcmd.nlm –f

Optional parameters:

-a <address> TCP/IP address of the master computer(s), which sends the RCCMD-signal.

-p <port> (optional) TCP-Port address, on which the master computer is sending

To start RCCMD in sending-mode (*send*) enter the following line in your shutdown-job:

load RCCMD -s -a <address> [-p 6003]

For <*address*> enter the TCP-address of the machine to which you want to send the RCCMD-signal. (Computers in "listening" mode, with an active RCCMD with parameter -l)

Optional parameters:

-p <port> TCP-Port, which the RCCMD-signal is using.

The option -a can be used multiple times, if a shutdown on remote network servers should be initiated.

Example: (Example path <path> = sys:\ups\upsman\rccmd.nlm)

load <path> RCCMD.NLM –s –a 192.168.210.3 -a 192.168.210.4 -a 192.168.210.10

...etc.until ”end of line”

unload RCCMD

load <path> RCCMD.NLM –s –a 192.168.210.8...etc.

unload RCCMD

Do not use the CD License key more than once. (Copyright regulations page 1). If more RCCMD modules need to be installed for the shutdown, additional CD license key must be purchased. Additional license keys are available from your UPS dealer, whereas the CD can be used again for the actual installation.

rccmd.nlm

Modul for the multiserver shutdown in IP-networks.

The rccmd.nlm contains different command line parameters, which are either for the ”send” or ”listen” modul of the RCCMD modul.

rccmd -? Help

rccmd -s Sending off a ”ping” signal to a waiting program

rccmd -l Waiting for a ”ping” signal. A command can be executed after the reception of the ”ping” signal.

rccmd –p Setting the port address (default = 6003).

rccmd –a Address in IP format e.g. 192.168.202.1

rccmd –t Time in seconds until a connection will be established. (default timeout = 10)

Example:

load sys:ups\rccmd.nlm -s -a 192.168.202.1 [-a 192.168.202.1]

load sys:ups\rccmd.nlm -s -a 192.168.202.1 -t 10

load sys:ups\rccmd.nlm -l -a 192.168.202.1 shutcmd.nlm [/para]

rccmdipx.nlm

This is a modul for just IPX networks. This modul sends a shutdown command (or any other console command) directly to every IPX server name. Please start RCCMDIPX on all Novell consols. The modul needs to be loaded on both servers.

This modul has to loaded on on both servers first

(1. Rename RCCMDIPX to RCCMS.NLM 2. Load RCCMD The following syntax is valid:

rccmd <server name> <console command>

Whereas <server name> is a valid server in a network enviroment and <console command> a valid NetWare command is.

Example:

1. load sys:ups\rccmdipx (or load RCCMD if RCCMDIPX.NLM is renamed to RCCMD.NLM)

2. rccmd gnw1 forcedown

or 1. load sys:ups\rccmdipx

2. rccmd gnw1 sys:ups\down.ncf

Instead of the down command for older *clib.nlm* files, the *forcedown* command maybe used.

Multiple-start RCCMD unter Novell

The multiple start RCCMD under Novell is relatively easy to manage. Several RCCMD clients may be started with the following command line:

load rccmd.nlm -l -a load down.ncf

whereas the syntax goes as follows:

LOADING RCCMD.NLM -L(LISTENER) -A(IP adress of UPSMAN/CS121/RCCMD SENDER) COMMAND (COMMAND TO BE EXECUTED)

Example:

LOAD RCCMD.NLM -L -A 192.168.10.2 LOAD DOWN.NCF

In this scenario the “down.ncf“ file is executed, which leads to an immediate shutdown of the client computer, if the RCCMD call from the RCCMD server (sender) is received. Other . ncf or .nlm (executables) files may be executed too.

A group of 8 .ncf example files can be found in the UPSMAN installation directory. Please note that these example files ma have to be adjusted by user/administrator according to the configuration of the system.

3.4 Unix

3.4.1 Installation of the UPS-Management Software

To copy the UPS-Management Software into your Unix-system you need a CD-ROM drive and a CDFS filesystem driver (ISO 9660). If there is no CD-drive on the system where the software could be installed from, you can use any other Unix-system or PC (via a network) to install the software.

The Unix part of the management software can be found in the Unix directory. As there is no standard binary executeable format for the different Unix systems we use a shell script to install the software onto your computer. Usually this shell script should have execute permisions; if so you can start it direct from CD-ROM.

If you do not have a CD-drive available, you may order the software on disks or tapes in TAR-format from your UPS dealer.

Otherwise use a DOS- or Windows workstation in your network and insert the CD there. Now you can copy the software (e.g. via FTP) to the hard drive of your Unix-system, /tmp directory. For that purpose, copy the complete Unix-directory-tree.

Only the UPSMAN modul command line based version of the UPSMON will be installed on your Unix system. In order to use the Windows version of the UPSMON modul, please start the installation again, using the second CD-key on a Windows workstation. ("Install Windows NT//95/98/2000/XP") It is not necessary to install the Windows version of the UPSMON modul to make use of the UPS server power protection.

Please make sure you have root user rights in order to proceed with the installation.

Step 1:	Insert your CD. If the reading of the CD file format is not supported by your system, proceed as described above.
Step 2:	The first step you have to do after inserting the CD-ROM into your CD-ROM drive is to mount this device, i.e. give the system accsess to the files at the CD-ROM. The usual command at al Unix systems to mount the CD-ROM has the follwing form

mount cd-rom-device mount-directory

However, there are serveral specific options for this command depending on the used Unix system. The following table displays these options:

Unix	options	device name
Linux	-o mode=777 -t iso 9660	/dev/cdrom
Sinix	-F hs	/dev/ios0/sdisk(id)s0
Reliant UNIX	-F hs –o dos,ro	/dev/ios0/device/cdrom
HP UX	-F cdfs -o cdcase,ro	/dev/dsk/c0t(id)d0
SCO Unix	-oro	/dev/cd0
Unixware	-F cdfs –r o fperm=777	/dev/cdrom/c0b0t(id)l0
DEC Unix	-f cdfs -o noversion	/dev/rz(id)a
SPARC	-F hsfs –r	/dev/dsk/c0t(id)d0s2
Solaris	-F hsfs –r	/dev/dsk/c0t(id)d0s2
IBM AIX	-o ro -v cdrfs	/dev/cdrom

Step 3: (id) is the SCSI-Id. There are two possible case modes of filenames at your CD-ROM: all file names are upper or lower case. This has to be noted when you call the installation programm or when you change the subdirectory at the CD-ROM. The ISO 9660 specification supports also version numbers at filename, so at some systems you will find suffixes ";" (semicolon) or "." (dot) with filenames. As you can abbrivate filnames with wildcards "*". After successfully mounting the CD-ROM into your system, you can start with installation by calling the install script, i.e.

Step 4: As a next step, please start the install script *install* by entering: *("./install" or "../install"* from the CD/Unix directory). In case your CD file system does not support the execution please copy the complete Unix directory tree to e.g. */TMP* and change with *CHMOD* the execution rights of the install script. Start the the installation with *./install* again. The procedure can look like this for e.g.:

cd /CDROM

cp -pr unix/ /tmp

cd /tmp

chmod +700 inst*

./inst*

Step 5: Please enter your CD-key at this point and choose the desired operating system from the list.

The installation script will copy all required files into the directory /usr/ups. If you don't want to have the software at this directory you can move the whole subdirectory /usr/ups to another directory. Please note that the so called start-up- script must edited in the directory "/etc/rc2.d" together with the scripts "*S99upsman*" and "*K99upsman*". This is necessary because these files contain reference to the directory *"/usr/ups*". In case the above mentioned files have to be relocated into another directory this reference would have to be changed appropiately.

Step 6: After the files have been copied to the system, the configuartion program *ups_conf* starts automatically.

3.4.2 Configuration of the UPSMAN

After a successful first installation of the UPS-Management Software the configuration starts automatically. If you want to start the configuration program at a later stage, start *./ups_conf*. The file *ups.cfg* contains the configuration data and has to be in the same directory as that in which the UPSMAN process is started from. The file *ups.cfg* is an ASCII-file and may be configured with any editor.

Within the configuration program the

?-key is available to read the help texts and the

Esc-key is available to close the menu.

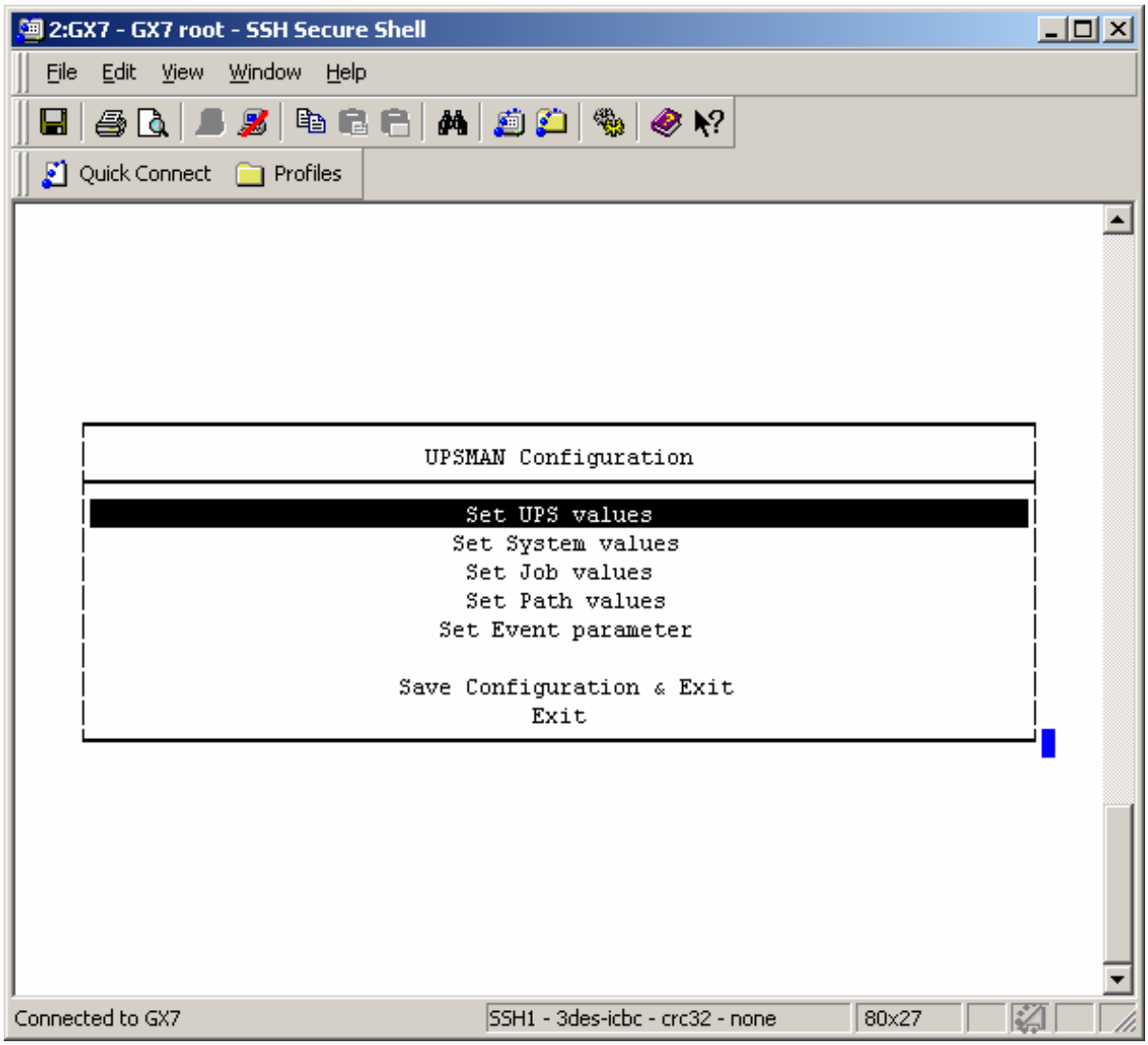


Figure 33 UNIX configuration menu

A possible problem is the indentification or correct serial device name on Unix. The following table gives the usual device names for different UNIX systems.

Unix system	Normal device name for the first interface
Linux	/dev/ttyS0
HP UX	/dev/tty0p0
SPARC	/dev/ttya
Solaris	/dev/ttya
Unixware	/dev/tty00
SCO Unix	/dev/tty1a
IRIX	/dev/ttyd0
IBM AIX	/dev/tty0
Sinix	/dev/term/ser0
DEC Unix	/dev/tty00

When using the CS122 UPS network adapter instead of the serial port of the UPS the following procedure must be followed:

Set the IP adress of the CS122 using ar webbrowser or telnet as described in the Quickstart set-up for the CS122.

Start "ups_conf".

Go into the "Set UPS values" screen.

Replace all of the values in the field "COM port Options" uptil the colon with with the CS122 connection:

For example: replace the Linux-Comport "/dev/ttyS0:2400,n,8,1" by the virtual CS122-Comport "vcom1@192.168.202.122:2400,n,8,1"
Note that the values for the baudrate and other values following the colon will automatically be set when changing the UPS model.

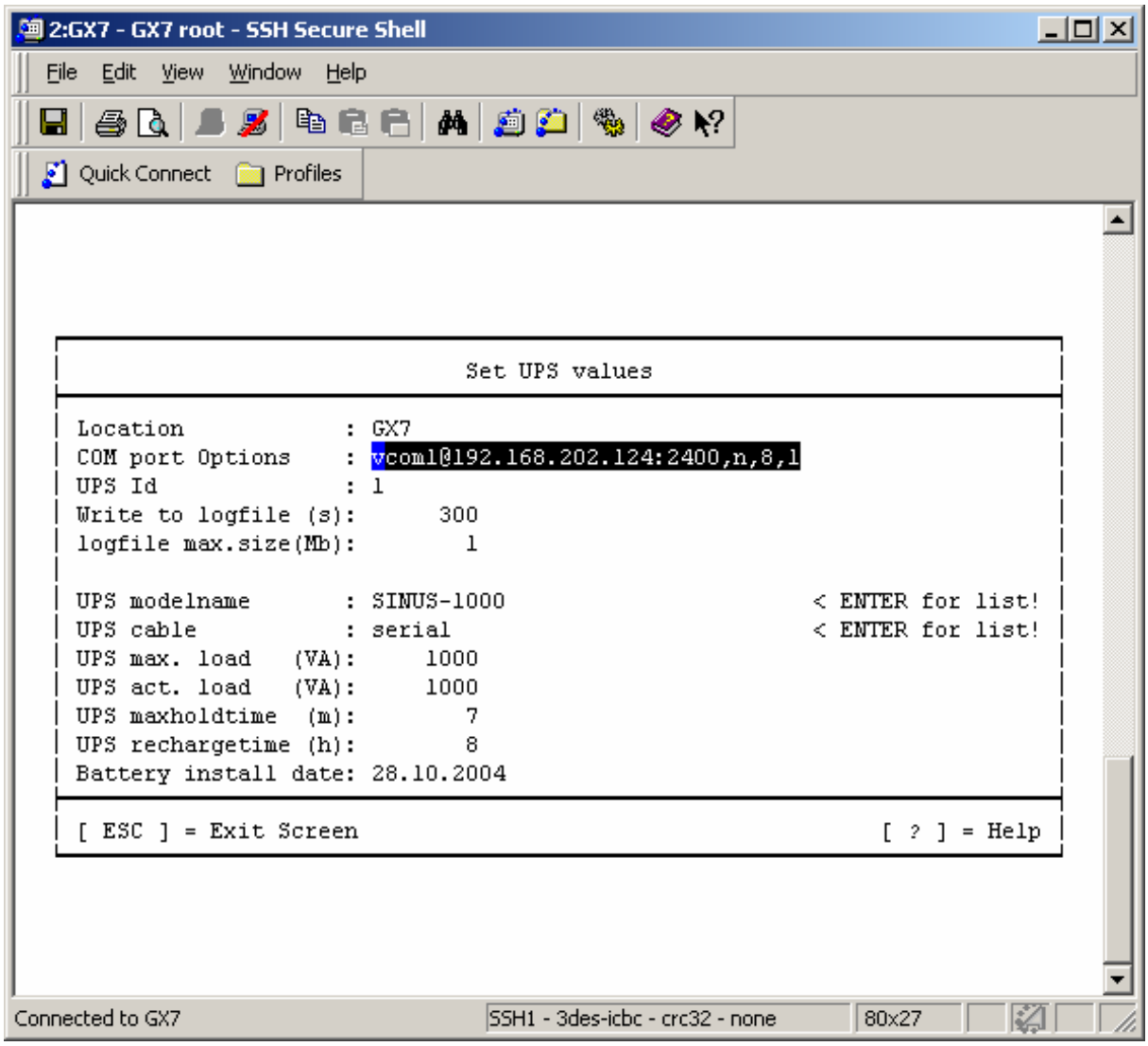

2:GX7 - GX7 root - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles
Set UPS values
Location : GX7
COM port Options : vcom1@192.168.202.124:2400,n,8,1
UPS Id : 1
Write to logfile (s): 300
logfile max.size(Mb): 1
UPS modelname : SINUS-1000 < ENTER for list!
UPS cable : serial < ENTER for list!
UPS max. load (VA): 1000
UPS act. load (VA): 1000
UPS maxholdtime (m): 7
UPS rechargetime (h): 8
Battery install date: 28.10.2004
[ESC] = Exit Screen [?] = Help
Connected to GX7
SSH1 - 3des-icbc - crc32 - none
80x27

Figure 34 setting the CS122 virtual comport in the UPS values – NOT for CS121 ! The CS121 does not need to communicate with any UPSMAN software, the UPSMAN is part of the CS121 !

The configuration program ups_conf is based on the so called ”Curses Library”. The most important entries are:

1. Com port options
2. Ups cable
3. UPS model name

These entries have to done in a correct manner, otherwise the UPS will not start. The entry UPS com port options contains also the information about the settings of the com port, i.e. baud rate, parity, data bits, etc. This informations must be included after a colon (":") with this entry, otherwise the UPSMAN program will not start. The entry UpsDevice has the follwing stucture:

UPS Com port options=device:baud,parity,data,stop

where device is the device name, parity is either e (=even), o (=odd) or n (=no), data is the number or data bits (7 or 8) and stop is the number of stop bits respectively.

Usually it is not nessecary to change the default entries for the serial port settings, because these are depending on the UPS model which is used. These options are read off the data basis which comes with the software. Only if you are sure that there is a mistake you should change the defaults.

Attention: **The baudrate settings and the corresponding parameters are changed to the correct settings automatically, by choosing the correct UPS model from the drop-down list. Please do not changed the baudrate settings of the UPS settings, unless you have changed the pre-programed settings of the UPS previously. (UPS usually have fixed baudrate settings!)**

Make sure that that there is no "active" entry (getty process) within your system file inittab concerning the device which should be connected to the UPS. If there is an entry with the same device name, this entry must be disabled (commented or respawn), otherwise the UPS-Management Software will not work.

If you are not sure if you are connected to the right device, you can find it out with the following procedure:

Choose cable settings to "Type O"

Plug a serial 1-1 cable to your computer

Start the software at the directory /usr/ups: ./upsman

Shorten the pins 2 and 3 with a paper clip. If you don't see a message like "powerfail ...", you are using the wrong device. In this case choose another device name and repeate the procedure above.

Step 1: Selecting a serial port

To select a serial port (*Comport*) enter the name of your TTY-device in the field *COM port options*. Use the default settings for the UPS model communication parameters (baud rate, parity, data length and stop bits).

Example: /dev/tty01:2400,n,8,1

Attention: **Please ensure you have to entered the correct serial port device name because the UPS-Management Software cannot identify to which com port the UPS is connected.**

Corresponding to the UPS model you have selected in Step 1 the UPS-Management Software has automatically set the UPS parameters. Usually you do not have to alter these settings unless you want to customise the system.

In general there are three different *UpsCables*:

Serial setting: The UPS-Management Software uses a data protocol to get status information from and to send commands to the UPS. Depending on the UPS type these data packages are more or less extensive. For the case of serial connection to the UPS there is usualy only a 2 wire (send and receive) cable necessary. But some UPS are answering, i.e. give a return package, only if there is a "high" signal at the DTR pin. In this case you need at least a three wire cable. Your UPS dealer will be able to provide the correct cable settings.

Cable 2 to 9: With these settings the UPS-Management Software uses modem control connection to get the status from the UPS, e.g. the UPS sets a signal "high" or "low". In this case the software is only able to get the status "Powerfail" and "Battery Low" and to shutdown the UPS immediatly. The cable settings 2 to 9 are not very appropriate for UNIX systems, because some of them do not support modem control exploitation. The ones which don't support these settings are: SCO Unix, Unixware, Sinix. If you use other Unix systems you can try a modem control connection with cable Typ 2. However we recommend that you use the settings "closed" or "opened", which are supported by every Unix system. Please ask your UPS dealer for the correct standard cable.

Typ O and Typ C: In this case the software sends a byte to the UPS and tries to get it again via the usual send/receive wires. The UPS must be a relays one, i.e. it switches a on powerfail. In the case of Type O (=opend) the relay is usualy open, e.g. the send byte can not be received except there is a power failure, because the relay is closed in this case. Notice that in the case of "Typ O" cable setting there is no way to check whether the UPS is connected to the computer or not! The logic is other way round in the case of setting cable type to Typ C (=closed). I.e. the relay is usualy closed and the software will notice the power failure on opening the relay. UPS interface without relays (dry contacts) can therfore not be operated with Typ 0 or C. We do recommend to use "real" RS-232 protocols for Unix systems. The use of cable type "closed" may cause the computer not to be able to boot. This can happen, when the computer shutsdown afetr the boot process, because off a powerfial.

The entry UPS model name This entry contains the UPS model name. This name can not be arbitrary, because it must be coincide with an entry in the software's database. If a UPS model is not found in the data base you will get an "set-up" error. Furthermore the

default device mode settings and the appropriate cable type are depending on this entry. Please always choose the correct UPS model from the list and use the pre-settings for the communication parameters.

Automatic Start at Server Boot

Every Unix system has a certain method to start programs at the boot procedure. Usually a main start-up script or program reads off specific directories (e.g. /etc/rc1.d, /etc/rc2.d, etc.) and executes the enclosed shell scripts. If you use this method you can start the UPS-Management Software at system boot time automaticaly. A prepared startup script which is enclosed in the software package. The startup shell startupsman.sh can look like this:

```
#!/bin/sh
#
#ident "@(#)ups 4.21 - 2001/12/14"
[ -x /usr/ups/upsman ] || exit 0
PATH=/sbin:/usr/sbin:/bin:/usr/bin
case "$1" in
start)
   CD /usr/ups
   upsmanpid=`ps -e | awk '$4 ~ /upsman/ && $4 !~ /[0-9]/ && $2 ~ /[?|-]/ { print $1 }'`
   [ -z "${upsmanpid}" ] && ./upsman && ./upstcp
   if [ -x ./upshttpd ]; then
      upshttpdpid=`ps -e | awk '$4 ~ /upshttpd/ { print $1 }'`
      [ -z "${upshttpdpid}" ] && ./upshttpd.sh
   fi
   if [ -x ./upssnmpd ]; then
      upssnmpdpid=`ps -e | awk '$4 ~ /upssnmpdpid/ { print $1 }'`
      [ -z "${upshttpdpid}" ] && ./upssnmpd.sh
   fi
   ;;
stop)
   cd /usr/ups
   upsmanpid=`ps -e | awk '$4 ~ /upsman/ && $4 !~ /[0-9]/ && $2 ~ /[?|-]/ { print $1 }'`
```

```
    [ -x ./upshttpd ] && upshttpdpid=`ps -e | awk '$4 ~ /upshttpd/ { print $1 }'`
    [ -x ./upssnmpd ] && upssnmpdpid=`ps -e | awk '$4 ~ /upssnmpd/ { print $1 }'`
    [ -n "${upsmanpid}" ] && ./upsman -s
    [ -n "${upshttpdpid}" ] && kill ${upshttpdpid}
    [ -n "${upssnmpdpid}" ] && kill ${upssnmpdpid}
    ;;
*)
    echo "Usage: $0 start|stop"; exit 1
    ;;
esac
exit 0
~
```

The directory change CD /usr/ups is necessary for the UPSMAN modul to find its configuration file. The alternative version is to call UPSMAN with the option "-c": *upsman -c /usr/ups/ups.cfg*. By doing this all file names have to be configured with absolute pathes, e.g give */usr/ups/ups_log.txt* instead of *ups_log.txt*, etc.

Most Unix systems use a general nomen clature for the names of the startup scripts. The scripts may look like this:

SnnName and *KnnName*, where *S* stands for start and *K* stands for kill, respectively. *Name* and *nn* are arbritray names and numbers, respectively. Sometimes there are links in the startup directories refering to the scripts, which can be found in a different directory. If your system uses such a naming, you should rename the file *ups.rc*, e.g. *mv ups.rc S99upsman, cp S99upsman K99upsman.* You can include the auto startup of *upstcp* into the file mentioned above as well.

UPSTCP

This program connects the remote Windows or Java UPS monitoring software using the local UPSMAN program. It must be started, if the you want to "connect" with the UPSMON software to UNIX controlled UPS. This can be done within the *ups.rc* startup script. The *upstcp* program is based on the TCP/IP network protocol. Any UNIX system has these protocol implemented; there is no need to install TCP/IP separatly. UPSTCP has to be started, if UPSMON for the graphical UPS monitoring is used.

Additional configuration:

In the next next section you will find explanations and additional for further configuration data.

Set UPS Values:

Step 1: Selecting the UPS-Model

To select your UPS-model, click with the mouse on the scroll box symbol on the right side of the model list. Next, choose the UPS model that you want to install. All other adjustments which correspond with your selected UPS model will be done automatically, if the UPS has serial communication.

Other UPS models with "cable" connections need additional adjustments. If you have a UPS-model with a port-type *cable* which does not transfer the connected *Load* to the UPS-Management Software, you have to enter the values of the actual *load* manually. Some UPS show the actual load on a display in % or in VA. Otherwise add the input power requirements in Watts of all connected units and calculate the Watt into VA (Watt/0,8 = VA). Enter this calculated *load* value into the configuration via the "load" selection. Do not change the default settings for hold time and recharge time, unless you install a specific UPS model or a battery expansion.

If you do not alter the default settings of the software (100% load), only a limited UPS autonomy time will be available.

Some UPS models have both port types (*cable* and *serial*). To guarantee the correct function of your UPS-Management Software use the default settings and the cable provided with the UPS or the software. Different cables will be required for different port types.

Enter the name or place of your server, in the section *Location* (e.g. ”Berlin”).

Attention:

If you use a UPS-model with the port-type "*cable*", please notice that the values for Hold- and Recharge time are in accordance with the manufacturers specifications and should only be altered in special configurations since the UPS could be discharged before the system has been shutdown.

Configuration Parameters

Standard Values

Write to logfile	Defines the time-interval (in seconds) the UPS-Management Software logs the Input Voltage and Frequency Values. The standard entry to the text file (Ok status) are done every 15 minutes, if no unusual Events occur.
Logtime min.	Defines the minimum time-range (in hours) of the Logfile for Input Voltage and Frequency Values.

Logfile Size max.	Defines the maximum time-range (in hours) of the log file for Input Voltage and Frequency Values. The log file will be set back to min. size (value of logfile size min.) if the log file contains more data than the configured value.
Set System Values	
Check UPS interval	Defines the time-interval (in seconds) that the UPS-Management Software polls the UPS for new data via the serial port. The system will be slowed down due to permanent communication with the UPS if the value is too small. If the value is too high the system will react more slowly if a power failure occurs.
Enable shutdown	Defines if the system will start the shutdown procedure in case of a power failure.

ATTENTION: **Make sure that this entry needs to be ”yes” at all times, if there are no customised shutdown jobs configured. This is to avoid that the UPS switches off before the system has performed a shutdown proberly.**

System downtime	Defines how many minutes before the UPS-battery is discharged the shutdown procedure is initiated. This time-interval has to be large enough to guarantee a graceful shutdown of the system before the UPS is switched off. Calculate the value on a large scale: (e.g. with 10 minutes hold time of the UPS start the shutdown procedure at least 3 minutes before the discharge of the battery).

The following functions are not supported by all UPS types. In particular, devices with the connection-type *cable* do not support a scheduled down and restore command.

Shutdown UPS	Defines if the UPS will be turned off on completion of the server shutdown procedure. This command will turn off the UPS before a complete discharge of the batteries.

UPS shutdown delay	Defines how many seconds after beginning the shutdown procedure (see Downtime) that the UPS will turn off.
UPS restore delay	Defines how many seconds after turning off the UPS the system is turned back on again. For most UPS types it is necessary that the power has been restored before the UPS has completely switched off.
Enable fixed shutdown	Defines if a shutdown needs to be initiated after a power fail, independent from the remaining time of the UPS and the configured system down time.
Fixed shutdown delay	Defines after how many minutes a fixed shutdown should be initiated.

The configuration is now complete. Exit the configuration program by choosing the menue entry *Save Configuration & Exit,* as only this way the configuration data is saved in the ups.cfg file. The UPSMAN may be started now.

3.4.3 Configuration of Jobs

The Special Jobs allow for the xecution of own programs, e.g. shell scripts at a defined point of time during the discharge of the battery. As soon as the UPS transmitts a "Remaining Time" which equal or lower than the configured value, the corresponding procedure is executed.

As soon as the "Enable Extra Job“ is set to "yes“, the program name or shell script of the desired job can be entered in the "Extra Job x (Path)“ line. This script is than started at a certain set Remaining Time of [m] minutes.

Example: Different network servers should be stopped at different times via shutdown script, depending on the importance. This way it is possible to provide (depending on the circumstances) more autonomy time for the important components.

Set job values

Additionally 3 jobs can be executed time controlled.

Path for textfile	Defines the filename and path of the event log.
Path for datafile	Defines the filename and path of the log file for Input Voltage and Frequency Values.
Path for custom file	Defines the file name and path of the custom file

UPSMAN Configuration
Enable Extra Job 1 : no execute at remaining time (m) : 0
Extra Job 1 (Path) : /usr/ups/ups_exe1
Enable Extra Job 2 : no execute at remaining time (m) : 0
Extra Job 2 (Path) : /usr/ups/ups_exe2
Enable Extra Job 3 : no execute at remaining time (m) : 0
Extra Job 3 (Path) : /usr/ups/ups_exe3
<ESC = Exit>
<Shift + '?' = help>

Figure 35 defining paths

Note

The custom file contains values, which can be used as an MS-Excel file at a later stage. This file contains information (measured data) from the messages.dat file. In this file changes can be made in line 700 (2-phased UPS or line 800 (three phased UPS). Using a standard editor, parameters can be edited or deleted from the default version.

3.4.4 Configuration of Events

The UPS Events enables the user to utilise and configure the different applications of a UPS. Depending on the matter of use, via Events (Event messages of the UPS) certain actions (Jobs) can be executed with the UPS-Management software. Via an Event it is possible to transfer measured values, status messages to own processes, in order to process those even further (e.g. load statistics etc.). The Event configuration starts from the UPSMAN configuration. (see picture)

Figure 36 UNIX entering the events menu

In this part of the configuration, the event parameter will be configured. The user can now choose a event, which needs configuring. (see picture below)

Which Events are configurable depends on the type of UPS. The standard messages, which can be used, can be found in the file "message.dat" in the UPSMAN directory.

Eventlist:

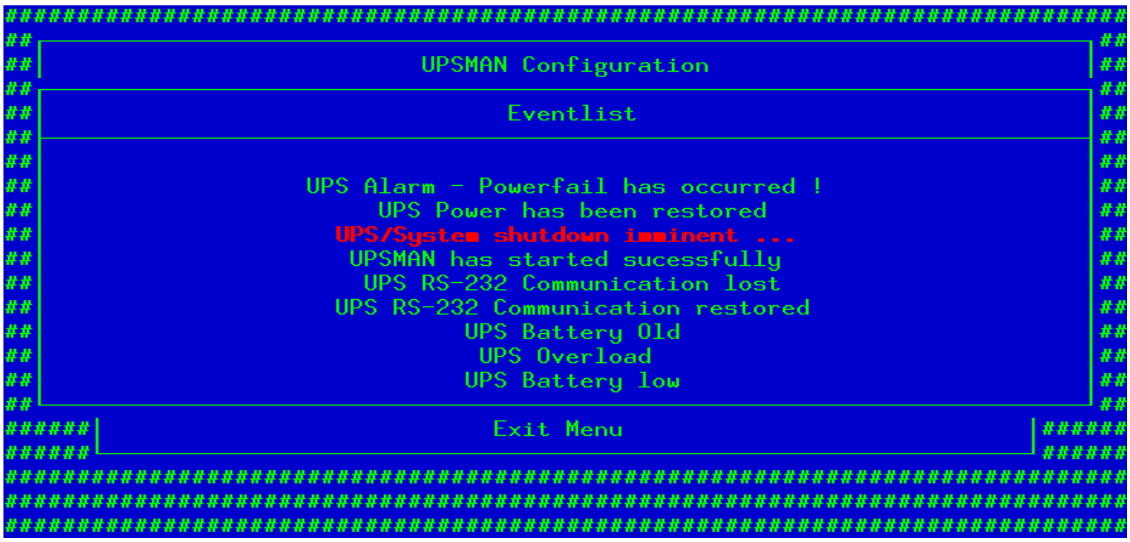


Figure 37 UNIX event list

In order to process the Events, please go to the Eventlist in the UPSMAN configuration. There is a pre-set (default) for every Event. In the above example, the event “UPS/System shutdown imminent...“ is configured with 3 default jobs. The first will send a standard message (message id 603), which can be edited in the messages.dat file. The second job will write the event into the log file of the UPS-Management software, whereas the third job will execute a shutdown after x minutes (default).

Add Event Job:

In order to add a Job to event, please highlight the corresponding event and confirm with the “Enter” key. In the following window, the “Add Job to List” a additional job can be added. By using “Delete Job from List“, a single event job can be deleted from the list. “Exit menu” will take the user back to the Eventlist windows. (see picture)

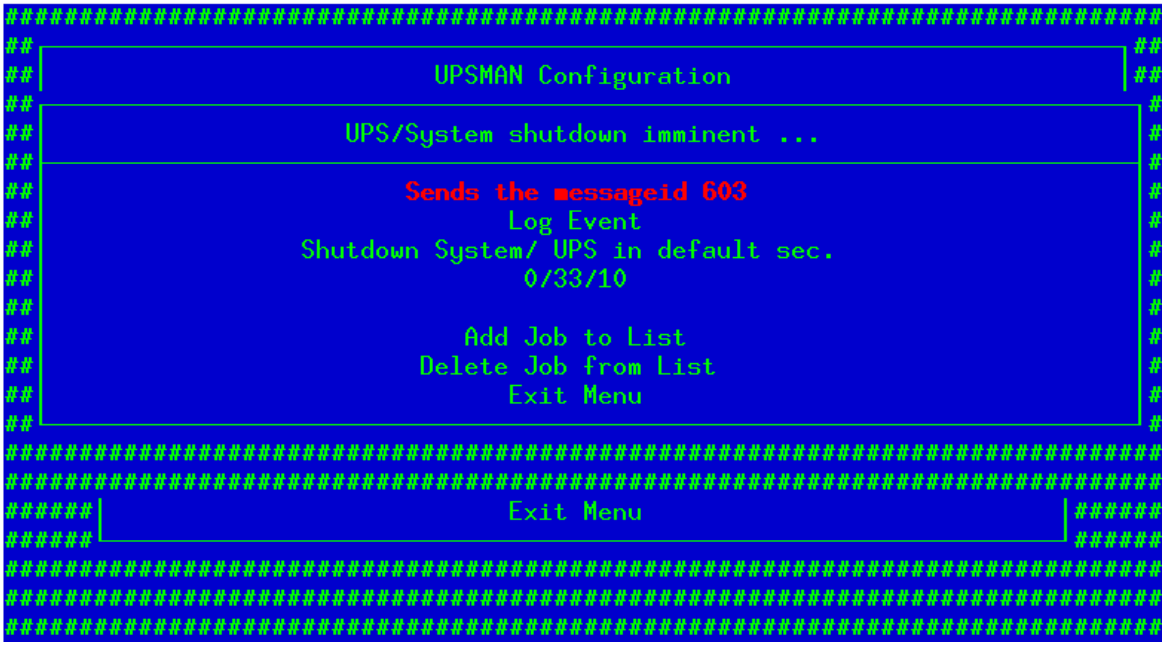


Figure 38 UNIX add job

Please choose the desired function and set when and how often this function should be executed. Please note listed functions depend on the used operating system and not all of them might be available. In this case please refer to share or freeware programs, which allow the desired function. The following jobs can be added to a event.

Send a Shutdown UPS Signal	Switches the UPS off after a pre-set time. Please be aware that the UPS is not being switched off before a system shutdown is executed, as otherwise important data may get lost. This shutdown signal only executes the switch off, of the UPS, but not the shutdown of connected computers. The user can configure a delay (in seconds) before the switch off is executed. This is recommendable when a switching off of an UPS is necessary because of over-heating etc.
Send Message box with text	Sends a network message. Enter a user name or use the "*" character (not with NetWare), in order to send the message to all users. Please note that the Windows 95/98 Clients NT message can only be only received if Winpopup.exe or another message service is active. Please also consider

	that "net send * <text> "with Windows 95/98 does not function correctly. Instead of the " * " a respective machine name e.g. "Workstation1" must be entered. In order to send messages to several users a "Send Message" job must be inserted per user. Please note that the Windows NT user database is not empty and that the computer belongs to a domain, as otherwise the network messages can not be sent.
Send RCCMD SHUTDOWN to remote client	RCCMD (remote console command) is a program used for the execution of executable files via network. This tool transmits a TCP/IP signal that is absorbed of the recipient module (RCCMD client software) on another computer. This function is normally used for sending a shutdown command (call of shutdown.bat) over the network to another computer, of any supported operation system. (starting from CD 4.17). From RCCMD Version 2.0 it is possible to use the (*) wildcard or other syntax. For example 192.255.255.255 will send the signal to all computers in the corresponding subnets. A RCCMD –s –a 192.168.200.255 will send the signal to all computers in the subnet 200. The entry of a IP address or hostname will send RCCMD only to those named. If it is required to shutdown more than one client, additional event jobs can be configured. Hint: If the number of the additional RCMD clients is too high, a batch file, which contains the RCCMD –s commands can be used instead. This much faster and also easier to handle than the a long list of event job list. This batch can be executed from the SPECIAL or EVENTS EXECUTE PROGRAM function. Please note that RCCMD should always be additionally configured in the “UPS Battery low” Event and if the Event “UPS/shutdown imminent....” is used, RCCMD must always be located before the “shutdown UPS in default seconds” command. For moving the command

	lines, “click” with the left mouse on the line, hold the button and now move the command.
Send eMail (only some Windows 95/98/NT/2000/XP and some UNIX Variations)	Sends an E-mail. Please enter the E-mail address and the corresponding text into the field. Please note that you need a configured SMTP server on the RCCMD client computer. A RCCMD message is send to the client computer, which make RCCMD client to start the Qblat module with an e-mail. The RCCMD client computer is therefore acting as an e-mail relais.
Send RCCMD EXEUTE to remote client	This action initiates the execute.bat on a defined remote client (IP-address). This bat file can be configured individually by the user. The user may execute a random program on the remote client computer, where the execute.bat is located. It is also possible to attach parameters, whereas these parameters must be added to the execute.bat which is executed as described above.
Send RCCMD MESSAGE ID to remote client	In this menu the user can send an ID from the messages.dat to other users. These IDs are set to default in the UPSMAN directory originally, but the text entries can be altered with an editor. The edited text is then given out in a textbox.
Start Alarm Beeper with Message box	This event function displays a message box with an acoustic warning on the screen, if a certain configured event occurs. The acoustic signal stays active until the return key is pressed.
Send RCCMD MAIL ID to remote client	Similar to RCCMD message ID, a message ID is send, which is then send as an e-mail to the corresponding receivers. The user can pick the ID message at random, whereas an editor can be used to alter the default ID messages in the messages.dat.
Send RCCMD MAIL TXT to remote client	Like the send e-mail function, an e-mails send to configured receiver and the text content is entered by the user a plain text in the function field configuration.

Send RCCMD LOG TXT to remote client	A text is send to the remote client, which is written into the log file of he RCCMD client computer.
Send RCCMD LOG ID to remote client	Similar to the message ID, a message ID is send from the messages.dat, which is then written into the logfile of the defined RCCMD remote client. The user may choose a random ID from the file. Again, an editor can be used to modify message IDs in the default messages.dat.
Send RCCMD MESSAGE to remote client	In this menu the user can connect and configure a text message with a RCCMD event. Text messages maybe send to RCCMD receivers. It is possible to send a RCCMD 2 message from the CS121 to a Windows 2000 or Unix computer, which then transmits these messages as “net send” and “wall” to the network. The problem of sending messages to different operating systems is now solved.
Execute Program	Executes a configured program. Please enter the full path to the executable file. Is the desired executable the same directory as the upsman.exe or *. nlm, no path entry is necessary. The handling of other variables is explained further on in this chapter.
Write to Log file UPSLOG.CSV	Writes the Event into the local log file of the UPSMAN computer
Send default messages IDs from file messages.dat	Sends pre-set network messages, using the receiver name and message id. This standard message can be configured in the "message.dat" Open the file with an editor (e.g. Ultraedit) in order to change or check the text of the corresponding message ID. A separate "send message" job has to be inserted for every user, if messages should be send to several users.
Write to MS Event Viewer	When a certain Event occurs, an entry into the Windows NT/2000/XP event viewer system program can be made in addition to the UPSMON event log file (upslog.csv). The event jobs in the UPS-Management software can therefore be integrated if e.g. a warning message

	during a power fail should be written to the event viewer. The user can utilise the Windows standard event viewer entries by choosing the type (informational, warning and error) and by adding text to the event viewer entries also.

3.4.5 Start of the UPS-Management Software

The UPSMAN is started from the command line. As a standard the UPSMAN uses the configuration file *ups.cfg*.

To start / stop the UPSMAN process use always the prepared script ./startupsman. For starting the UPSMan with all its necessary processes and services type

./startupsman start

To stop the processes call the script with the parameter stop as follows:

./startupsman stop

(Please do not make use of killing UPSMan processes manually.)

3.4.6 Multiple-Start UPSMAN on Unix:

Copy the directory: /usr/ups to /usr/ups1

Change to /usr/ups1 and start UPS_CONF, please change the UPS parameter for the second device and also change under EVENTS the devices, which still refer to the original path.

Please change the file UPS_EXE path and program calls according to the changes.

Please open the file UPS.CFG with an editor (e.g. Ultraedit) und check if all paths refer correctly to the new directory and also correct wrong entries.

The two UPSMAN processes need to be started differently: e.g. ”usr/ups/upsman –n1” will start UPSMAN with the /usr/ups/ups.cfg configured settings on e.g. TTY0. A second call: ”usr/ups1/ upsman –n2” will start a second UPSMAN on e.g. TTY1 from the /usr/ups1 directory. Two UPSMAN processes now run simultaneously on the same Unix machine and read data from the corresponding UPS parallel.

If the user requires UPSTCP to be active for the monitoring of Windows UPSMON32.EXE, the following parameters –n1, bzw. –n2 need to be started from the corresponding directories e.g. ”usr/ups1/upstcp –n1 –p 5000”. These will start the UPSTCP on the port address 5000 on the Unix machine: A second cue

”usr/ups2/upstcp –n2 –p 5999”

will start the second network deamon on a different port address. As soon as both UPSTCP are running, every system can be directly communicated with via the UPSMON for Windows. The UPSMON for Windows is started and TCP/IP is activate in the command line with the following syntax.

”192.168.202.16:5770”. The UPSMON will now establish a connection to the UPSTCP on IP Address 192.168.202.16 and display the UPSMAN on port 5770.

If the user wants to use the UPSMAN Webbrowser in order to monitor both UPSMAN processes, the following method is recommended:

Please check if both UPSMAN are active and also check the shared memory areas. Commands like e.g. icps show that the UPSMAN processes reserve the shared memory area n=1:0x0034b203 and n=2:0x0034b204, demonstrating that 2 UPSMAN processes are active.

Please check where the first Web-server upshttp is running. Using netstat –a a running upshttp on port 8081 can be seen as active.

In order to start thesecond Web-server, the port has to be changed to e.g. 8082 in the upshttp_conf of the 2 UPSMAN. The Web-server may now be started.

Using a Web-browser the corresponding UPSMAN can be displayed:

e.g. <IP-address>:8081/upsman.html?n=1

(for the first UPSMAN upsman -n 1 and upshttpd -p 8081

e.g. <IP-address>:8081/upsman.html?n=2

(for the second UPSMAN upsman -n 2 and upshttpd -p 8082)

3.4.7 Shut down of the USV-Management Software

To stop the UPSMAN processes use always the prepared script ./startupsman. For canceling the UPSMan with all its necessary processes and services call

./startupsman stop.

3.4.8 Unix UPSMON

The UPSMON for Unix is a simple monitoring tool for the display of the current UPSMAN data and for the programming of own scripts for further processsing UPS information.

In addition all UPS functions and UPS tests can be activated by UPSMON:

Parameter for UPSMON

usage: upsmon {-vicdtrh} [-n start-number]

-v Program information

-i <value> Query of a UPS-measurement

-c <ups command> Execution of a UPS-function

-d <ups command with duration> <seconds> Execution of a timed UPS-function

-t <ups test> Execution of a UPS-test function

-r <ups test result> Query of a UPS-test functions result

-h Display of extended help

-n <start-number> Is a definite number, if more than one UPSMAN is running on the Unix-machine (several UPS at one computer)

<values>: -i

status

inputvolt

inputcurrency

battvolt

temperature

autonomietime

autotime

battcap

batterycapacity

outputpower

inputfrequenz

outputfrequenz

<ups command>: -c

canceltest

cancelbatterytest

cancelshutdown (only certain UPS supporting this command)

alarmreset

bypassmode

shutdownrestore [down seconds] [restore seconds]

switchoutlet [0=off|1=on] [outlet nr]

<ups command with duration>: -d

shutdown

restore

cancelbypass

outputoff

<ups test>: -t

customtest

batterytest

selftest

fulltest

<ups test result>: -r

customtest

batterytest

selftest

fulltest

Example:

Command for read "autonomy time":

"./upson -i autonom"

Response from upsman :

"upsmon: Inquiry (autonomietime) ups answer: 25.48

Command for Shutdown UPS and Restore

-/upsmon –d shutdownrestore 90 120

Note: **More information about the UPSMON modul is given in part III of this manual.**

Unix commands

Some of the most common Unix commands are listed here. On all UNIX systems you will find an explanation to these commands via the man pages by typing "man *command*". The output can be redirected with the ">" sign to any filename or device, e.g. cat ups.cfg >/dev/lp0 (print file ups.cfg).

Function	UNIX command	options & comments
Change directory	CD directory	
List directory entries	ls	-l (long) with date and size
Show file	cat filename	
Show file page by page	more filename	type q to quit more
Find files	find	-name, -print –ctime e.g. find all files which begins with "ups": find / -name "ups*" -print
Copy files	copy source target	-r include subdirectories -p use date and time of source file
Rename files	mv source target	
Edit a text file	vi filename	The vi is a editor with different modes: input-, replace- command mode, etc. To escape from a certain mode type ESC. To quit the vi editor change to command mode (type ":") and q
Search for a string in a file	grep "string" filename	-i (case insensitive)
Handle archive files	tar vtf *archive* tar xvf *archive*	list an archive extract files from an archive

3.4.9 RCCMD version 1 on Unix

The RCCMD (remote console command) is a program that allows the execution of programs on remote computers. This tool is part of all UPSMAN supported operating

systems. With this tool it is possible to connect different operating systems. E.g. is the UPS-Management Software installed on a Unix computer and should a remote shutdown be executed on a computer with a different operating system in heterogene network, the RCCMD tool is necessary.

The RCCMD tool is based on the TCP/IP protocol. During the installation, the TCP/IP protocol should be installed in the first place.

The RCCMD tool works in two different modi. In the so called ”Listen” modus, the program (as background process) waits for a command from the ”Send” modus of the RCCMD modul.

To start RCCMD in receiving-mode (*listen*) enter the following line:

<path>/rccmd –l {-a IP Address or Host Name][-p portaddress]”command”

Example

/usr/ups/rccmd –l –a 192.200.100.10 -p 6003 /usr/ups/sups_exe 3

Optional parameters:

-a <*address*> Computer, which accepts the RCCMD-signal.

-p <*port*> TCP-Port, which receives the RCCMD-signal.

The ”command” file should be given in the full path. The –p port option maybe used, if you want to start the RCCMD modul on more the one computer, in order to execute different commands for different Events. Please check the following example, also note that the default port is 6003.

To start RCCMD in sending-mode (send) enter the following line in your customised script: (see chapter 4.1.3) for reference:

RCCMD -s -a <address> [-p 6003]

For <*address*> enter the TCP-address of the machine to which you want to send the RCCMD-signal.

Optional parameters:

-p <*port*> TCP-Port from which the RCCMD-signal is sent, in this case default 6003

The option *-a* (address) can be entered several times in case you want to shutdown several remote server.

Example:

The UPS Management Software is running at computer UPS-host. It should shutdown the database at server data-host at UPS powerfail and shutdown the server data-host and the

host users at the end of battery capacity. The doshutdown script at UPS-host can look like:

```
# powerfail
1)
        sleep 1
    ${MSGTOALL}<<-!

UPS ALARM / UPS POWERFAIL!

    Stop applications and log out!
!
/usr/ups/rccmd -s -a ups-host -p 6000
        ;;
...
# powerdown
3)
        sleep 1
    ${MSGTOALL}<<-!
UPS ALARM / NOW SYSTEM SHUTDOWN !
!
/usr/ups/rccmd -s ups-host -p 6003
    /usr/ups/rccmd -s users
    sync; sync; sync
    /etc/init 0
    ;;
```

And at data base server data the rccmd programs should be started as

/usr/ups/rccmd -l -p 6003 -a ups-host "/usr/ups/db-down" (shutdown)

/usr/ups/rccmd -l -p 6001 -a ups-host "/sbin/init 0". (warning)

Note: **Do not use the CD License key more than once. (Copyright regulations page 1). If more RCCMD modules need to be installed for the shutdown, additional CD license key must be purchased. Additional license keys are available from your UPS dealer, whereas the CD can be used again for installations.**

UNIX RCCMD multiple sender configuration:

In case the user wants to utilise more than one sender address the rccmd.sh has to be modified like this:

```
#! /bin/sh

# You may specify a sender IP to accept signals from,
# default is everyone.
SENDER="-a 10.55.52.82 -a 10.55.52.83 -a 10.55.52.84"

# You may change the port to listen on,
# default is 6003.
PORT=

# You must define a command to be executed upon
# receiving signal.
SCRIPT=/usr/ups/doshutdown.sh

# test -z $SENDER || SENDER="-a $SENDER"
test -z $PORT || PORT="-p $PORT"

# to start:
./rccmd -l $SENDER $PORT $SCRIPT
```

3.4.10 Configuration of Rccmd V2

Note: **This section does not apply to rccmd V1 for Unix, in addition it only applies to rccmd running in 'Listen' mode.**

Rccmd V2 running in 'Listen' mode may be configured using a Configuration file. By default rccmd will look for a file named 'rccmd.cfg' in its startup directory (usually '/usr/ups'). This file may be generated using rccmd_conf. Rccmd_conf is a small curses-based utility which runs on the console or a Terminal or a Terminal-Emulation under the X Window System (e.g. xterm).

Note: **The contents of 'rccmd.cfg' are vital to system security. It should be writeable only for the System User 'root'.**

Run rccmd_conf:

$ su -

Password:

cd /usr/ups

./rccmd_conf

if 'rccmd.cfg' does not exist (e.g. if you run rccmd_conf for the first time) the following notice will be displayed:

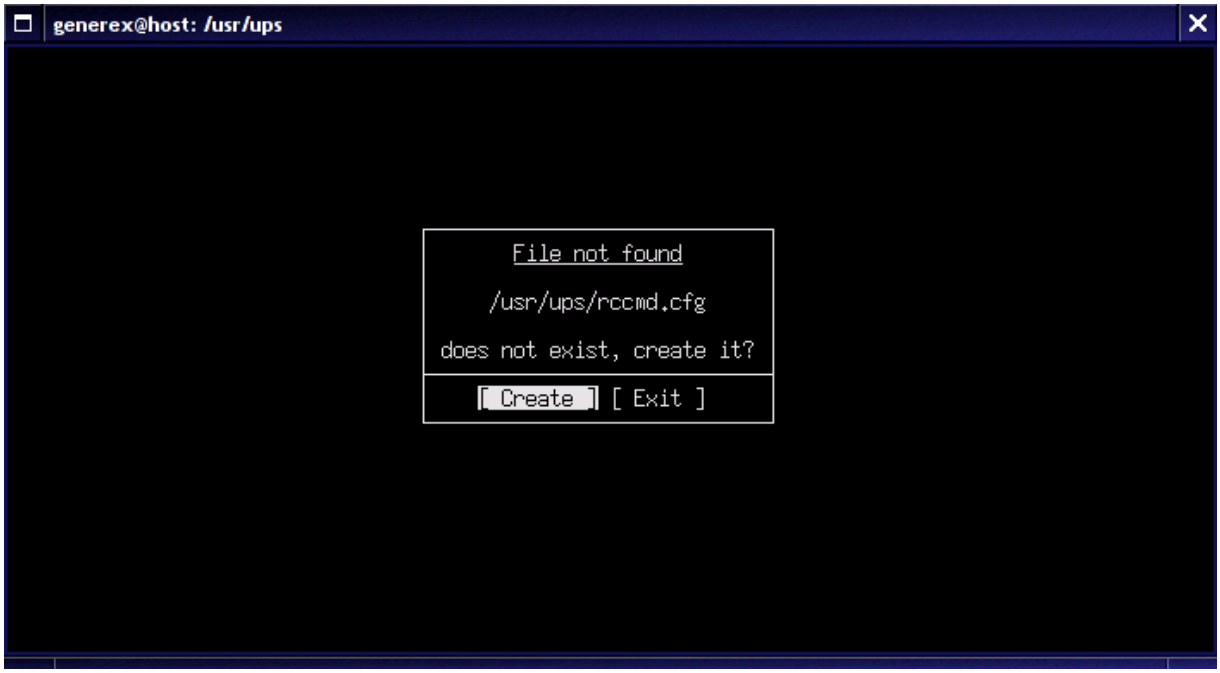


Figure 39 Making the configuration file

To proceed hit the [Tab] key until the [Create] button it is highlighted and press [Enter], otherwise select [Exit].

If you created 'rccmd.cfg' or if the file existed already rccmd_conf will switch to its main configuration menu.

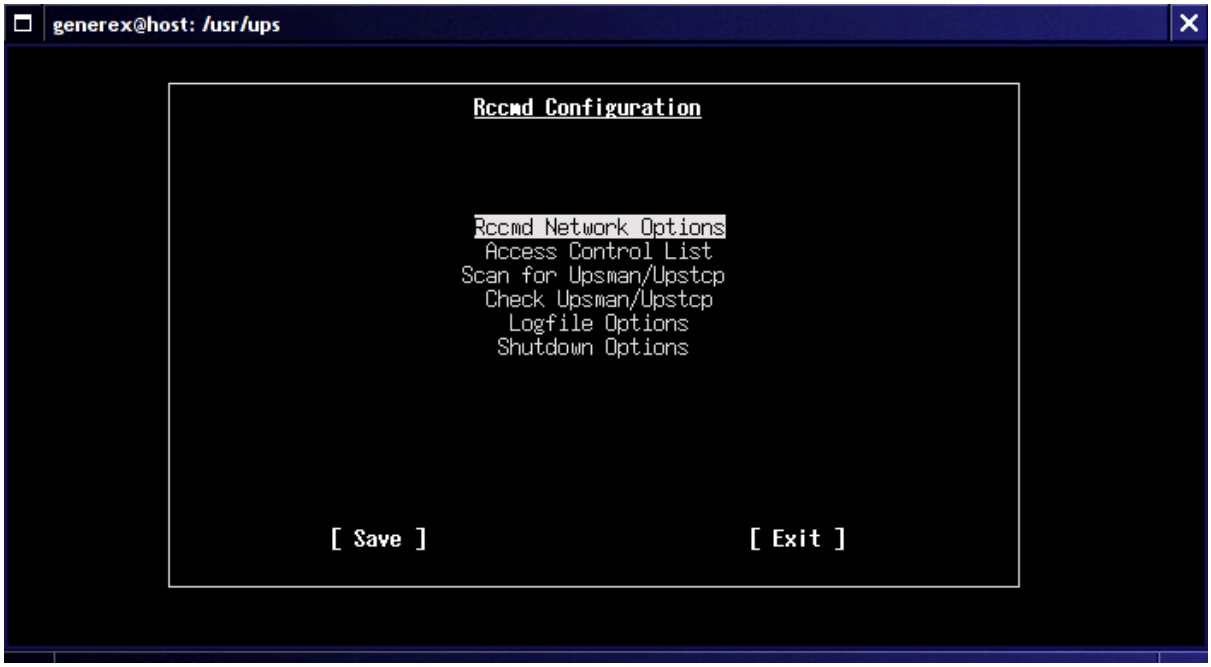


Figure 40 RCCMD Configuration menu UNIX

To switch between the menu entries use the [Tab] key and/or the arrow keys [←], [→], [↑] and [↓]. To select an entry press [Enter].

It is not necessary to work from top to bottom, you may configure the menu items in any order. In fact it is not necessary to configure anything at all, if you just select [save] 'rccmd.cfg' will be written with default values sufficient to run rccmd. To use all features of rccmd and/or improve security it is however strongly suggested to customize 'rccmd.cfg'.

Configure “Rccmd Network Options”

In this screen you may configure network related options of the rccmd listener. To switch between the option-fields and buttons use the [Tab] key.

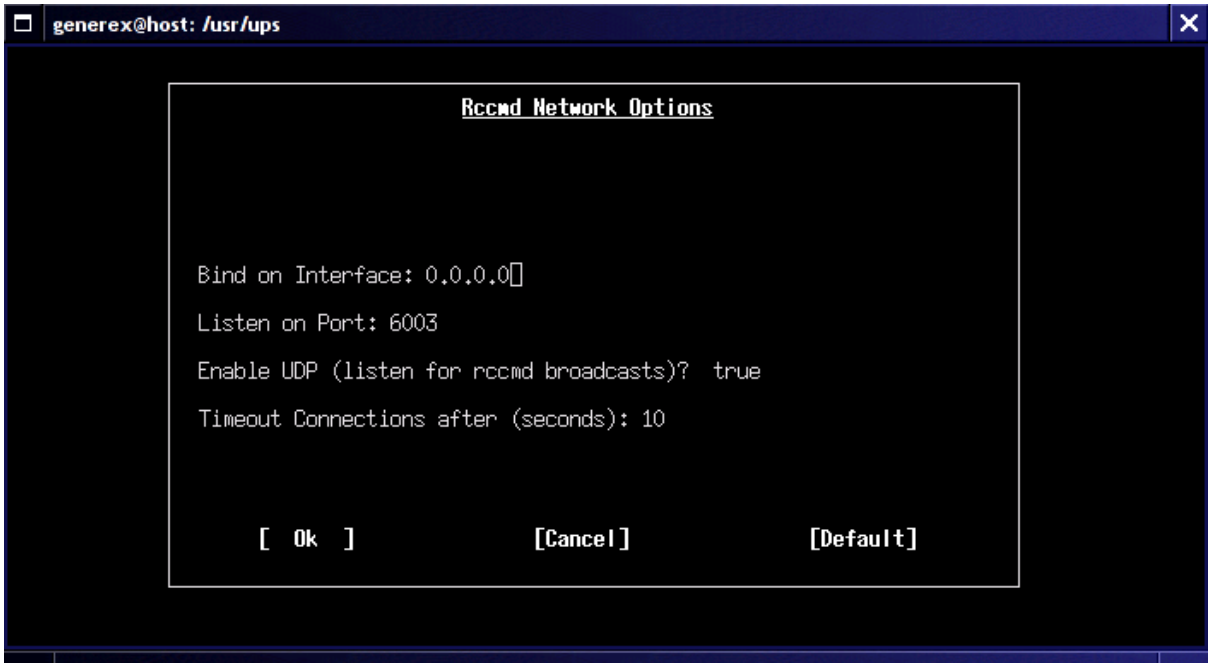


Figure 41 RCCMD UNIX Network Options

Bind on Interface:	This option tells rccmd on which network interface it binds its main tcp listen socket. You may enter any valid IP address your host can be reached under. The default value for this option is 0.0.0.0, this is a working value, it means 'listen on all possible interfaces of this host'. If your host has a dial up connection to the Internet you may want to change the default, to ensure rccmd will not be connected from the Internet. In this case you will enter the primary IP address of the host rccmd listener is running on. Example: Your company runs a private network in the 192.168.1.0/24 address range. The host rccmd listener is running on is assigned the IP 192.168.1.9. You may enter 192.168.1.9 for “Bind on Interface”, to ensure only host from the private network can connect to rccmd.
Listen on Port:	This is the port rccmd will listen to. Allowed values range from 1 to 65535 (inclusive). The default is 6003. If you change the port of the rccmd listener you will also have to switch the port of the rccmd sender in order to enable a connection. It is normally not necessary to change this setting.
Enable UDP:	If this opion is enabled rccmd will open an UDP Listen Socket in addition to the TCP Socket. This allows the rccmd listener to receive rccmd broadcasts. Possible values are 'true' and 'false'. The default is “true”. To switch the value use the [↑] and [↓] keys.
Timeout:	Timeout for TCP connections. The default is 10 seconds. It is normally not necessary to change this setting.

To reset all values to their defaults select the [Default] button by hitting the [Tab] key, then press [Enter].

To leave the Screen select either [Ok] or [Cancel] with the [Tab] key and press [Enter], [Ok] means accept all values as displayed on the screen, [Cancel] means discard all changes made to the screen.

Configure “Access Control List”

“Access Control List” contains a list of valid sender addresses. A valid sender address is the IP address of an rccmd sender that is allowed to connect to the rccmd listener. Initially the List is empty.

Note: **An empty Access Control List means everyone is allowed to connect.**

To switch between the entries in the list use the [↑] and [↓] keys, to switch between the buttons use the [Tab] key. To select an entry press [Enter].

Figure 42 RCCMD UNIX add sender

To add an IP address hit the [Tab] key until the [Add] button is highlighted, then press [Enter].

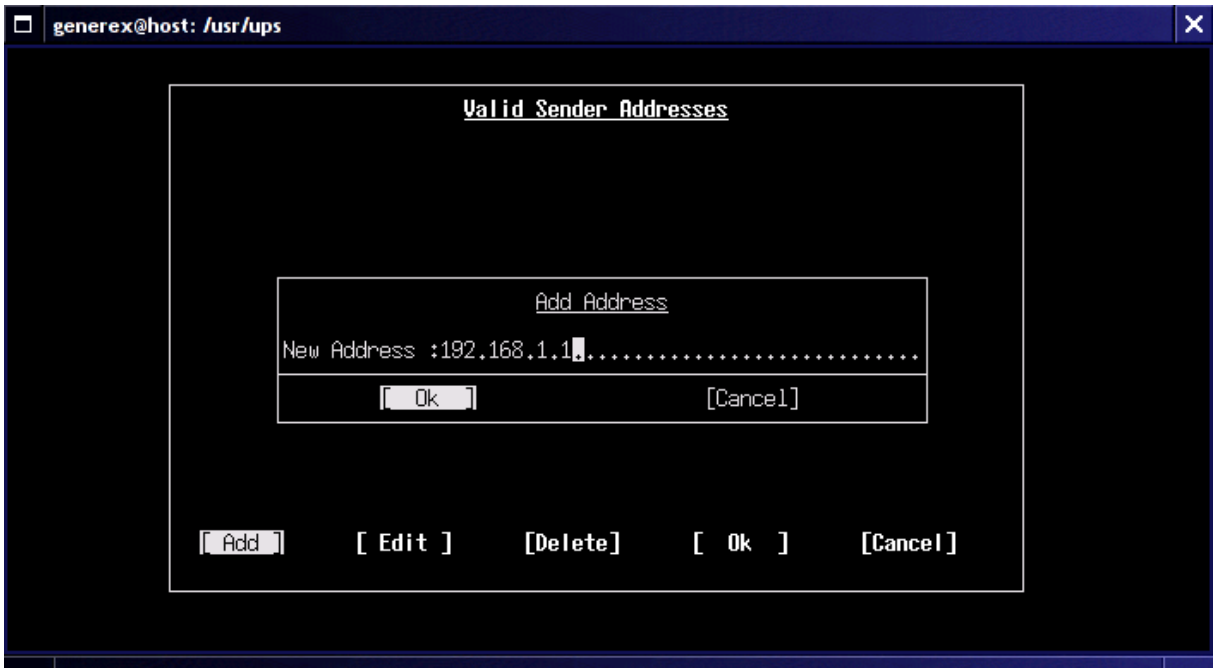


Figure 43 RCCMD UNIX sender example

Enter the IP address of the host you want to be able to connect, then press [Enter].

Figure 44 RCCMD UNIX sender overview

To edit an entry in the list select it by hitting the [↑] and [↓] keys until the entry is highlighted, then hit the [Tab] key until the [Edit] button is highlighted, then press [Enter].

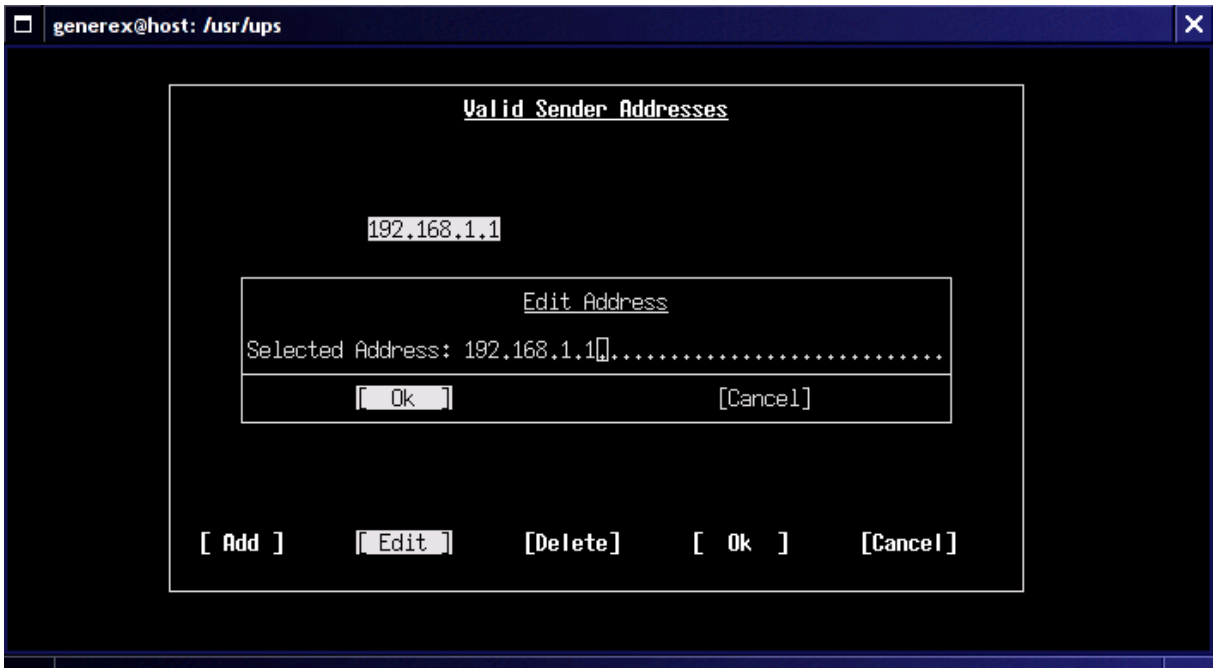


Figure 45 RCCMD UNIX edit sender

Edit the Address in the “Edit Address” Window. To keep your changes select the [Ok] button with the [Tab] key and press [Enter] otherwise select [Cancel].

To delete an entry in the list select it by hitting the [↑] and [↓] keys until the entry is highlighted, then hit the [Tab] key until the [Delete] button is highlighted, then press [Enter].

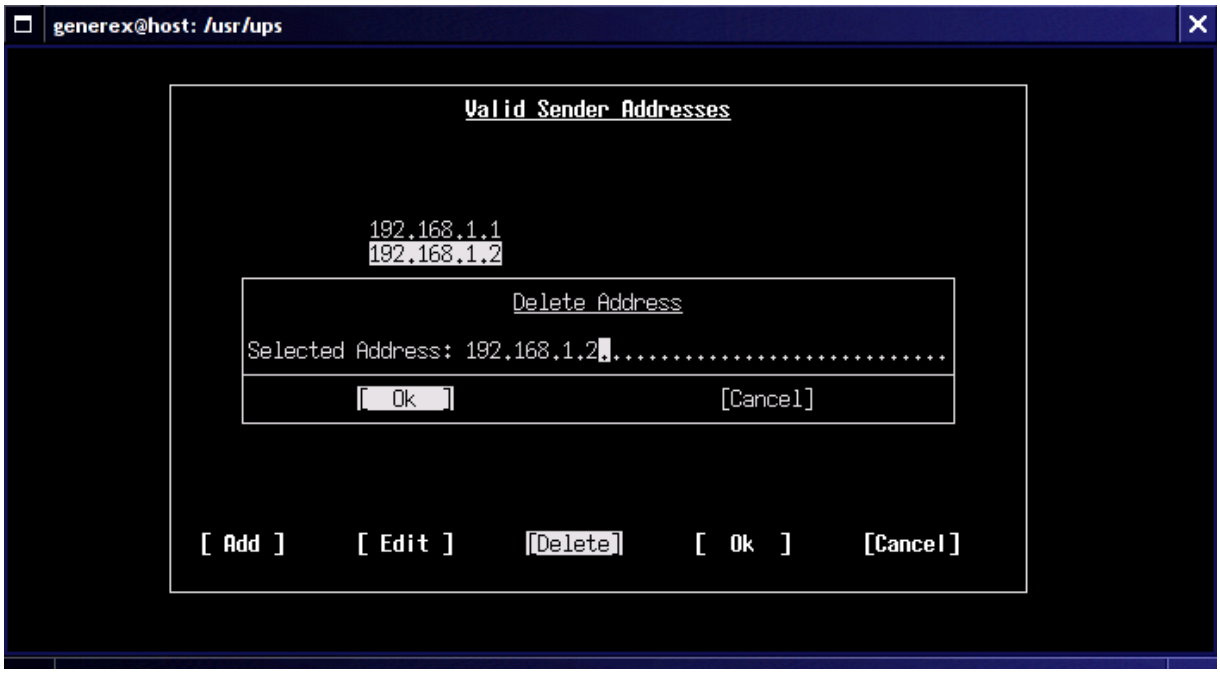


Figure 46 RCCMD UNIX delete sender

Confirm to delete the entry by selecting [Ok] with the [Tab] key and pressing [Enter], otherwise select [Cancel].

To leave the Screen select either [Ok] or [Cancel] with the [Tab] key and press [Enter]. [Ok] means accept the list as displayed on the screen, [Cancel] means discard all changes made to the list.

Scan for Upsman/Upstcp:

This screen allows you to scan your network for Upsman/Upstcp servers. You may want to add the detected IP addresses to the “Access Control List”.

Note: **The options on this screen do not directly affect rccmd. However, the results of a network scan may be transferred to the “Access Control List”.**

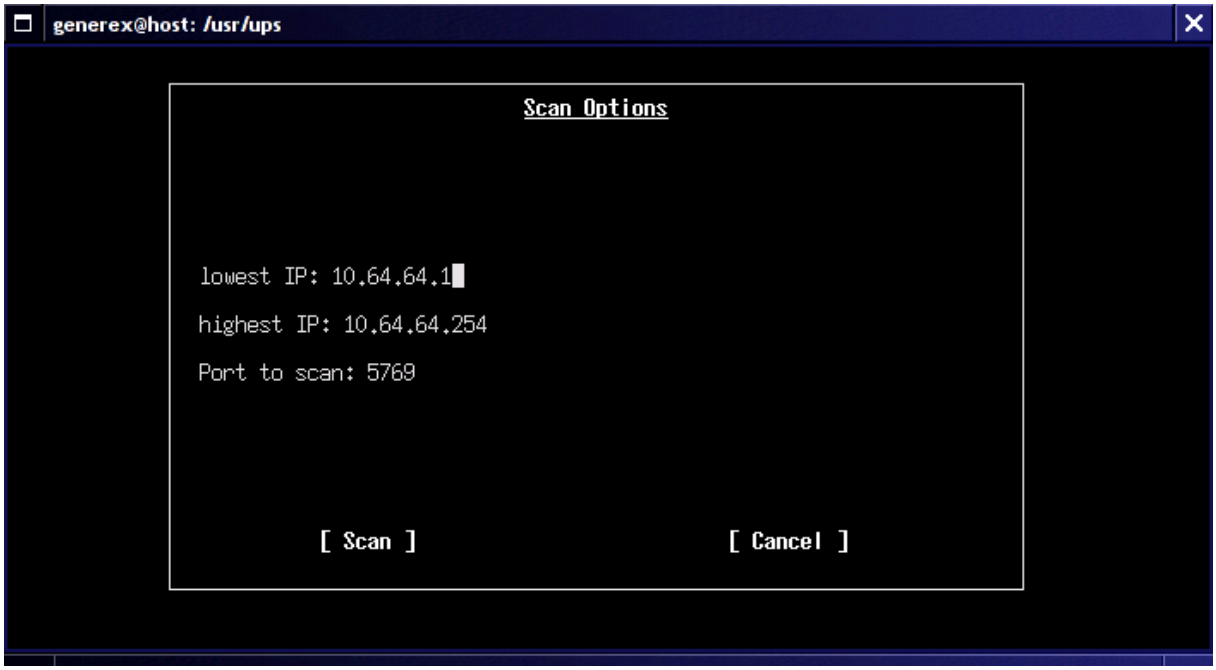


Figure 47 RCCMD UNIX sender scan

lowest/highest IP: On startup rccmd_conf tries to determine the hosts primary IP address. From this address a corresponding Class C network range is derived. These are the default boundaries for the network scan. If you want to scan another network or adjust the range, move to the desired entry (lowest and/or highest IP) using the [Tab] key and change the address as apropriate.

Port to Scan:	The port the scanner will try to connect to. The default is 5769, which is the default port of the Upsman/Upstcp server. If you have Upsman/Upstcp running on a different port you may want to switch this option accordingly.

To start the scan select [Scan] using the [Tab] key and press [Enter], otherwise select [Cancel].

Configure “Check Upsman/Upstcp”:

The Rccmd listener has the ability to check periodically if the Upsman/Upstcp servers configured in “Access Control List” are alive.

Note:	**The “Check Upsman/Upstcp” feature is only available if there are any addresses configured in the “Access Control List”.**

If there are one or more entries in “Access Control List” the screen “Check Upsman Options” pops up.

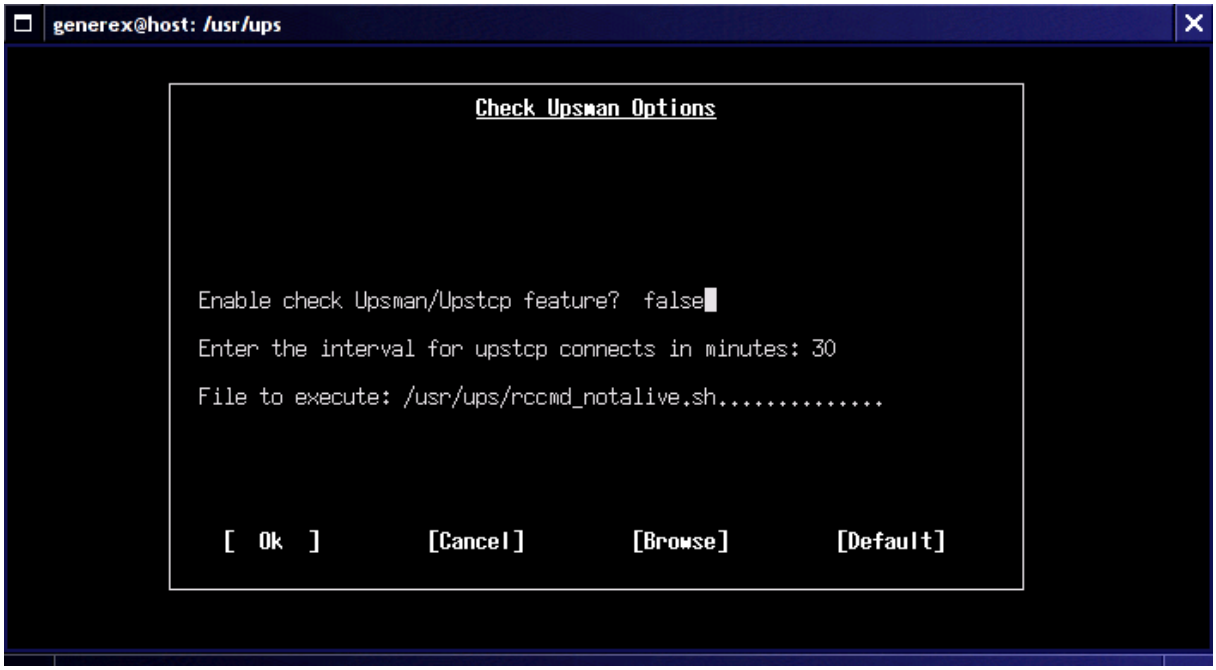


Figure 48 RCCMD UNIX check upsman

Use the [Tab] key to move through the option-fields and buttons.

Enable check Upsman/Upstcp feature:	Possible values are “true” and “false”, “false” is the default. To change the value use the [↑] and [↓] keys.
Enter the interval for upstcp connects in minutes:	
	Interval to connect Upsman/Upstcp servers in minutes. Default is 30 minutes. To change overwrite the value in the options field.
File to execute:	This file will be executed if rccmd is not able to connect one (or more) of the configured Upsman/Upstcp servers, asuming that either the host is down or the Upsman/Upstcp process is not running. Default is '/usr/ups/rccmd_notalive.sh'. You may change this value by overwriting the string in the options-field or by selecting a file in the file-browser. To invoke the file-browser hit the [Tab] key until the [Browse] button is highlighted, then press [Enter].

To reset all values to their defaults select the [Default] button by hitting the [Tab] key, then press [Enter].

To leave the Screen select either [Ok] or [Cancel] with the [Tab] key and press [Enter], [Ok] means accept all values as displayed on the screen, [Cancel] means discard all changes made to the screen and switch back to the previous state.

Configure “Logfile Options”:

The rccmd listener is able to write and maintain a logfile. It will log events such as startup and shutdown of the program, accepted and denied network connections and executed commands. Some parameters may be configured on this screen.

Figure 49 RCCMD UNIX logfile options

Enable logging to file:	Possible values are “true” and “false”, “true” is the default. To change the value use the [↑] and [↓] keys.
Select maximum size of logfile:	The logfile will not grow larger than this size. If the size of the logfile would exceed this limit rccmd will automatically shrink it by 10% before it continues write to the log. The file will be shrinked from the start, so older entries will be removed first. The default size is 1024 Kb. To change the value use the [↑] and [↓] keys. The special value '0' means the file will not be shrinked.
Logfile name:	This option specifies the name and location of the logfile. The default is “/usr/ups/rccmd.log”. You may change this value by overwriting the string in the options-field or by selecting a file in the file-browser. To invoke the file-browser hit the [Tab] key until the [Browse] button is highlighted, then press [Enter].

To reset all values to their defaults select the [Default] button by hitting the [Tab] key, then press [Enter].

To leave the Screen select either [Ok] or [Cancel] with the [Tab] key and press [Enter], [Ok] means accept all values as displayed on the screen, [Cancel] means discard all changes made to the screen and switch back to the previous state.

Configure “Shutdown Options”:

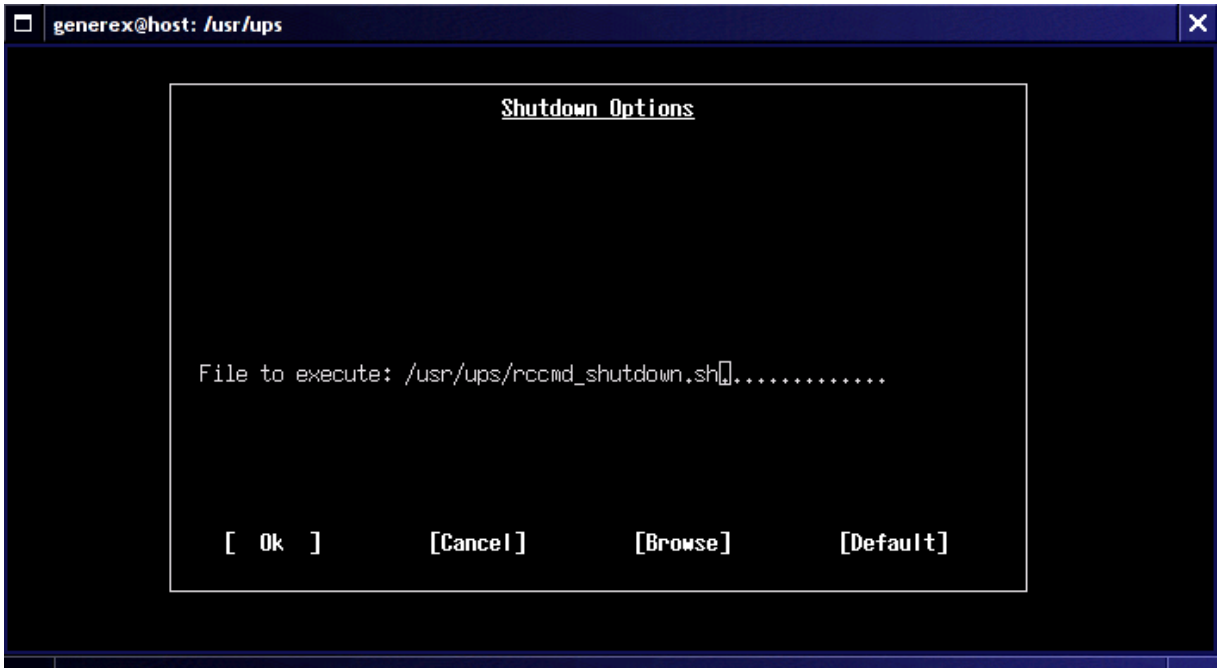


Figure 50 RCCMD UNIX shutdown options

File to execute: This file will be executed if rccmd receives the “SHUTDOWN” command from the network. Default is /usr/ups/rccmd_shutdown.sh. You may change this value by overwriting the string in the options-field or by selecting a file in the file-browser. To invoke the file-browser hit the [Tab] key until the [Browse] button is highlighted, then press [Enter].

To reset all values to their defaults select the [Default] button by hitting the [Tab] key, then press [Enter].

To leave the Screen select either [Ok] or [Cancel] with the [Tab] key and press [Enter], [Ok] means accept all values as displayed on the screen, [Cancel] means discard all changes made to the screen and switch back to the previous state.

Exit rccmd_conf:

In the main configuration menu “Rccmd Configuration” select either [Save] or [Exit] by hitting the [Tab] key until the desired button is highlighted and press [Enter]. [Save] means 'rccmd.cfg' will be written according to the actual values of the Configuration screens, [Exit] will just exit the program, leaving 'rccmd.cfg' untouched.

The File Browser:

Some of the screens above use a small build-in file browser like this:

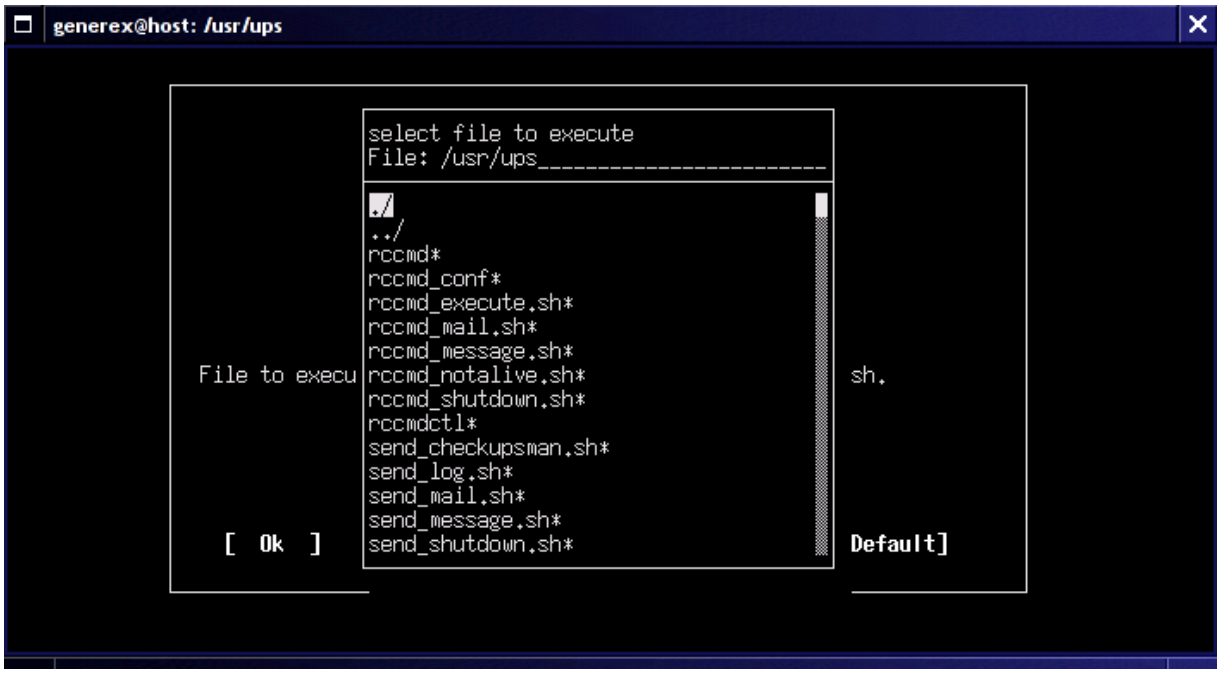


Figure 51 RCCMD UNIX file browsing

The [↑] and [↓] keys may be used to move the list up and down. Pressing the [Enter] key will select the highlighted entry. If the selected entry is a directory the browser wil move into this directory and list its contents. As usual the double dot '..' means the parent directory. File types are indicated similar to the output of 'ls -F'. This means a '*' is appended for executables, '/' for directories, '@' for symbolic links and '=' for sockets.

3.4.11 UNIX WEB-Server

The Unix WEB SERVER offers the possibility to display all UPS data with a platform independent WEB-Browser. In order to establish a connection from a WEB-Browser to a UNIX WEB SERVER, please enter the IP address and a port number. Example: http://192.168.202.91:8081. Port 8081 is used as a standard at the start up of the server. Please adjust the script /usr/ups/upshttpd.sh, if you would like to use a different port. It is possible to start the Web-server with different port addresses, if several UPS monitor a Unix server.

Start of the WEB-Server:

Configure and start the UPSMAN as described in the chapters 4.1.2 and 4.1.3

Start the WEB-Server by executing the script /usr/ups/upshttpd.sh

Displayed data:

Capacity of the UPS in percent

Battery capacity in percent

UPS- Input load

UPS-Status

Battery remaining time

In addition the button "Get TextLog File“ transfers the log file which has been written by the server and displays the information via the WEB-Browser.

The button "JAVAMON“ starts the JAVAMON, which displays the UPS data analog to the Windows-client.

The display for both kinds of displays is depending on the typ of UPS one or three-phased.

Please see the graphics also on the next page.

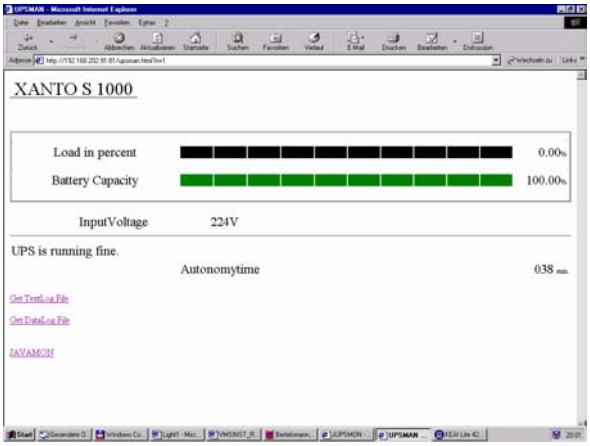


Figure 52 UNIX UPS data (display of the internet explorer)

Figure 53 UNIX UPS data (display fo the JAVAMON)

3.5 DEC VMS

3.5.1 Installating the UPS-Management Software, UPSMAN

Note: **The VMS license is not part of the standard CD; It is to be ordered separately. It is not permitted to use the VMS version and its RCCMD modules without registered license.**

General

Before the installation you should make sure that you know the logical device name of the serial interface, which communicates with the UPS. Make sure that no other process is executed over this interface (e.g. TTA0 or TTB0). Please refer to the instructions of the following paragraphs. If you need further assistance on this topic, look up the Troubleshooting section in this manual. Also contact your UPS dealer for further information.

Attention: **The alpha version was created with OpenVMS 7,1. For OpenVMS 6.x you should select the version 6.x manually, on the subdirectory on the CD, e.g.: DKA200:[vms.alpha.6x]**

Installation:

Step 1: Please insert the desired medium in its corresponding drive.

Step 2: Connect UPS cable between UPS and the computer serial interface. Login to VMS system via the SYSTEM login.

Step 3: Mount the CD ROM:

MOUNT/OVERRIDE=IDENT DKA200: UPS UPS: (replace DKA200 with the name of your CD-ROM device)

Step 4: Please copy the archiv VMSA.ZIP (Alpha directory) and UNZIP.EXE into a temporary directory on your system.

SET DEF UPS:[VMS.ALPHA]

COPY VMSA.ZIP SYS$SCRATCH

COPY UNZIP.EXE SYS$SCRATCH

Step 5: Switch into the temporary directory and set a system variable for the unzip program:

SET DEF SYS$SCRATCH

MYUNZIP = "SYSSCRATCH:UNZIP"

Step 6: Unpack the zipped data:

MYUNZIP VMSA

(VMSA.ZIP will be extracted to UPSAxxxx.A and xxxx indicates the version number, eg. 0441)

Step 7: Start the VMS installation routine:

@SYS$UPDATE:VMSINSTAL

Step 8: Answer YES at the prompt: "Are you satisfied with the backup of your system disk [YES]"

Step 9: Answer "Where will the distribution volumes be mounted: " with:

SYS$SCRATCH

Step 10: Answer: " Enter the products to be processed from the first distribution volume set." With the name of the zipped package without its extension “.A”, eg.:

UPSA0441

Step 11: Answer : "Enter installation options you wish to use (none):" by pressing the enter key.

Step 12: Enter the license code corresponding to your UPSMAN version. (Respect the license agreement and do not use this code on any other VMS Station!)

Step 13: Answer: „Please enter target directory (complete path)“ with the absolute path of the installation directory, eg.:

SYS$SYSDEVICE::[UPS]

Step 14: Answer: "Do you want the UPSTCP servers to be started", with Yes (Y) or No (N)

The UPSTCP servers are required when using a UPS in a TCP/IP network with one or more MS-WINDOWS UPSMON clients. Should monitoring the UPS on a Windows client not be necessary answer ”N” at the prompt and continue with step 16.

Step 15: Answer: ”How many simultanious tcp connections should be possible (1-99)”

Entering a „0“ at this prompt is equivalent to disabling this function all together. Otherwise, enter the number of MS-WINDOWS UPSMON clients that should be allowed to monitor the UPS at the same time.

Step 16: Leave the VMSINSTAL process by pressing the enter key at the prompt”Product:”

The following problems may arise:

Problem: VMSINSTAL error message: "UPSA0441.A is not a valid save-set"

Possible solution:

Solution: UNZIP.EXE was unable to extract the data with the correct RMS attributes out of VMSA.ZIP. Use the following DCL command:

SET FILE /ATTRIBUTES= (RFM:FIX, LRL= 32256, MRS= 32256, -
ORG=SEQ, RAT=NONE) UPSA0441.A

Consult the VMS documentation or system administrator if trouble arises when using the mount command for your device.

3.5.2 Configuring the UPS Management Software

Establish and go into the UPS target directory, eg.:

SET DEFAULT SYS$SYSDEVICE:[UPS]

Start the UPS Management Software configuration by executing *UPS_CONF.EXE :*

RUN UPS_CONF.EXE

Please consult the UNIX section of the user manual for important information regarding the use of the configuration program, UPS_CONF. While using the unix syntax be sure to use the typical VMS naming conventions for the sreial devices, for example TTAx, “x” indicating the (TTA0:2400,n,8,1). Do not change the baud rate specified by the manufacturer unless modifications have been made to alter these settings.

We recommend setting the ”check UPS interval(s)” to somewhere between 11 and 30 seconds. The UPSTCP process will not permit for shorter intervals on a UPSMON Client.

Check the UPS_EXE.COM script for correctnes in the events of Power fail, battery-low and etc. Any necessary changes can be made with a text editor. Make sure that the ”shutdown” command has been activated and that the system can be shutdown without any further input. Note: If the serial interface used for monitoring by the UPSMAN process uses a SET TERM command then the initial line of the VMSStartup-file must be changed. For example:(Sample out of SYSTARTUP_V5.COM, System Startup File)

SET TERMINAL TTA1: /PERMANENT /NOAUTOBAUD /SPEED=9600
/PROTOCOL=DDCMP

If TTA1 is the UPS, then delete this line!

a. Strart UPSMAN to begin monitoring the UPS: @UPSSTART

After one or two minutes, use the UPSMON to check the status of upsman and the UPS:

UPSMON –i status

The following output should result:

upsmon: Inquiry(status)

ups answer: ok

An error will be indicated by:

upsmon: ups daemon not in progress, start upsman

Check the SYS$OUTPUT file (Make sure that it is ended with a closing point) in the installation directory (For example, DKA100:[UPS]) for error messages. The usual entries are as follows:

upsman: coming up...

upsman: cannot open UpsDevice

Error(4605) : Connection : Timeout failure : error(65535)

upsman: not started

Check the configuration (cable, Baudrate, Port) and the connection to the UPS, make sure that the configured port and the used port correspond with one another. Also try using an alternative port (TTA0 <-> TTB0) and consult the Troubleshooting section of the manual.

The VMS Startup file should initiate UPSMAN. The UPSSTART.COM script can be used to set this configuration.

Insert the the following line into the SYS$MANAGER:SYSTARTUP_VMS.COM file before the EXIT command (If UPSMAN has not been installed as SYS$SYSDEVICE:[UPS] the change the device and Path accordingly):

$ @SYS$SYSDEVICE:[UPS]UPSSTART

The installation is finished once UPSMAN has been successfully started. If UPSTCP has been started, a Windows UPSMON client can graphically monitor and operate the UPS.

After a successful installation, the following commands remove no longer needed files:

SET DEF SYS$SCRATCH

DELETE VMSA.ZIP

DELETE UPSA0441.A

DELETE UNZIP.EXE

3.5.3 RCCMD

The UPS-Management-Software CD contains the RCCMD software. The VMS RCCMD installation can be done by following the UNIX installation instructions in this manual and all of the steps are the same.

Rccmd uses TCP-Port 6003 per default. If this port is for some reason not available another port can be defined by calling the RCCMD Daemon using the following option: Option –p <port>.

Please pay attention to the following steps for the installation:

Important: **The Alpha-Version is linked to OpenVMS 7.1. For OpenVMS 6.x use the Version 6.x in the following CD directory (ex. DKA200:[VMS.ALPHA.6X]).**

Installation:

Step 1: Insert the CD.

Step 2: Login into the VMS System using SYSTEM login.

Step 3: Mount the CD-ROM device (if DKA200 is the device name of the CD-ROM):

$ MOUNT/OVERRIDE=IDENT DKA200: UPS UPS:

Step 4: Copy the RCCMD.ZIP and UNZIP.EXE files from the ALPHA directory on the CD to a temporary destination on your system:

$ SET DEF UPS:[VMS.ALPHA]

$ COPY RCCMD.ZIP SYS$SCRATCH

$ COPY UNZIP.EXE SYS$SCRATCH

Step 5: Go into the temporary directory and set a system variable for the program unzip:

$ SET DEF SYS$SCRATCH

$ MYUNZIP = "SYSSCRATCH:UNZIP"

Step 6:	Extract the Zip file: $ MYUNZIP RCCMD (RCCMD.ZIP will be extracted to RCCMDAxxx.A, xxx representing the version number, i.e. 031)
Step 7:	Start the VMS installation routine: $ @SYS$UPDATE:VMSINSTAL
Step 8:	Answer YES at the prompt: "Are you satisfied with the backup of your system disk [YES]"
Step 9:	Answer "Where will the distribution volumes be mounted: " with: SYS$SCRATCH
Step 10:	Answer " Enter the products to be processed from the first distribution volume set." With the name of the extracted file excluding the extension: RCCMDA031
Step 11:	Answer "Enter installation options you wish to use (none):" by pressing the enter key.
Step 12:	Enter your license key corresponding to RCCMD Version for this installation. (Respect the license agreement and do not use this code on any other VMS Station!)
Step 13:	Answer „Please enter target directory (complete path)“ by entering the absolute installation path followed by pressing the enter key, ie.: SYS$SYSDEVICE:[UPS]
Step 14:	Answer YES to ”Would you like to start the RCCMD Module automatically on your system“
Step 15:	End the VMSINSTALL routine by pressing RETURN at the ”* Product:” prompt.

The following problems may arise:

Problem: VMSINSTAL error message: "RCCMDA031.A is not a valid save-set"

Possible solution:

Solution: UNZIP.EXE was unable to extract the data with the correct RMS attributes out of VMSA.ZIP. Use the following DCL command:

SET FILE /ATTRIBUTES= (RFM:FIX, LRL= 32256, MRS= 32256, -
ORG=SEQ, RAT=NONE) RCCMDA031.A

Consult the VMS documentation or system administrator if trouble arises when using the mount command for your device.

Configuration

Enter the RCCMD installation directory.

$ SET DEFAULT SYS$SYSDEVICE:[UPS]

Together with RCCMD.EXE three DCL command files have been installed:

- RCCMDSTART.COM:

Default Startup Command for starting RCCMD, alter this files to suite your specific needs.

- RCCMD_SHUTDOWN.COM:

Default Execute Command called by RCCMD for initiating a System Shutdown.

- RCCMD.COM

„Wrapper“ Command File, called by RCCMD.EXE with parameters. Configure RCCMD.COM so that it is started with „rccmd -l“. Optionally, the name of the sending computer can be also entered („rccmd -l –a <IP-address of the sending computer> -p <port (standard 6003)>“).

Afterwards start RCCMD by calling RCCMDSTART.COM:

$ @RCCMDSTART

Check the process with:

$ SHOW SYSTEM

RCCMD should appear in the list.

The VMS Startup file should initiate RCCMD. The RCCMDSTART.COM script can be used to set this configuration.

Insert the the following line into the SYS$MANAGER:SYSTARTUP_VMS.COM file before the EXIT command (If RCCMD has not been installed as SYS$SYSDEVICE:[UPS] the change the device and Path accordingly):

$ @ SYS$SYSDEVICE:[UPS]RCCMDSTART

RCCMD will now be automatically started.

After a successful installation, the following commands remove no longer needed files:

SET DEF SYS$SCRATCH

DELETE RCCMD.ZIP

DELETE RCCMDA031.A

DELETE UNZIP.EXE

3.6 OS/2

3.6.1 UPSMAN Installation

General

The OS/2 development has been discontinued 1998. The UPS-Management Software version 3 however remain included in the delivery of the standard CD –only devices that where part of the programm 1998 will be supported.

The UPS-Management software is only working for specific UPS models. Please consult your UPS dealer for more information.

3.6.1.1 CID Method

Before you copy the UPS-Management software via CID onto your system, please execute the following job first.

1. Install TCP/IP for OS/2 and WinOS/2 (The latter is recommended in order to use the UPSMON module under Windows. However, not needed for the stand-alone operation.)

Note: **The UPSMON module is not required for just UPS monitoring and shutdown.**

2. Please write down the CD-ROM drive letter and the future installation directory. You may start CIDSTART from the CD-ROM now
3. Choose between WARP and LAN SERVER installation.
4. Install "All components" and enter the installationpath. Please notice this path, because you will be asked for it afterwards during the license key installation.
5. The files will be copied now. Leave the installation at the end of this process via F3 or via "close".

6. The License Key is requested now. Please enter your correct CD ROM drive letter (eg. "g:"), enter your installation directory path (eg. "c:\UPS\UPSWARP"), enter the correct License Key Code of your CD ROM. (eg. "6K01xxxxxxxx").

7. Afterwards a new folder "UPS Software OS/2 WARP or LANSERVER" with several icons will be created.

8. "UPS Config WARP bzw. LANSERVER" is the configuration program that has to be started to configure your UPS. Follow the configuration instructions in the user manual chapter 6.2

9. The icon "UPSMAN WARP or LANSERVER" is the background task for the UPS monitoring. After a correct configuration you may start this process now. WARP: If no error message occurs, the configuration is correct and the UPSMAN process now active. LANSERVER: The box "UPSMAN: COMING UP..." will appear. Please notice that you have to make an entry in the IBMLAN.INI (See user manual) to be able to start the UPSMAN as network service. You may test your configuration and simulate a powerfail. A messagebox will appear. Under LANSERVER the UPSMAN will be started as a background process, using "net start UPSMAN" and using "net stop UPSMAN" to stop the UPSMAN process.

10. The icon UPSTCP starts the process UPSTCP, which needs an active UPSMAN and a correct TCP/IP configuration to start. When this process is active, you may monitor the UPSMAN and use the grafic management tools from any Windows computer with TCP/IP

Note: **UPSTCP is not required for normal UPS monitoring and shutdown.**

11. The icon UPSMON16 starts this Windows 16-bit Monitoring Programm, which may now connect

via TCPIP with the UPSMAN. You may start this program also from a windows OS/2 shell.

12. The icon UPSMON is a commandline driven program, which shows the actual UPS data of the UPSMAN monitoring process. This tool may be used to check the actual UPS data and if the UPSMAN process is still running. UPSMON runs only on the local computer, no network connection possible.

13. The installation and configuration is now finished. The UPSMAN and UPSTCP may be now entered into your automatic cold boot routine of OS/2.

3.6.1.2 DOS Method

Alternativ, the DOS installation program install.bat may be used. However, we recommend the CID method.

3.6.2 Configuration of the UPS-Management Software

After a successful first installation of the UPS-Management Software the configuration program starts automatically. Load the existing configuration file (*ups.cfg*) found in the UPS directory. The file *ups.cfg* contains the configuration-data and is located in the actual program-directory where *upsman.exe* is started.

For configuration of UPS-Management Software for OS/2 two configuration programs are available. One program is *ups_conf.exe* which is a windows program, the other one is *upsconf.exe* which is a MS-DOS program. We recommend the use of the Windows version.

Step 1: **Selecting the UPS-Model**

To select your UPS-model, click with the mouse on the scroll box symbol on the right side of the model list. Next, choose the UPS model that you want to install. All other adjustments which correspond with your selected UPS model will be done automatically, if the UPS has serial communication.

Other UPS models with "cable" connections need additional adjustments. If you have a UPS-model with a port-type *cable* which does not transfer the connected *Load* to the UPS-Management Software, you have to enter the values of the actual *load* manually. Some UPS show the actual load on a display in % or in VA. Otherwise add the input power requirements in Watts of all connected units and calculate the Watt into VA (Watt/0,8 = VA). Enter this calculated *load*

value into the configuration via the "load" selection. Do not change the default settings for holdtime and rechargetime, unless you install a specific UPS model or a battery expansion.

If you do not alter the default settings of the software (100% load), only a limited UPS autonomy time will be available.

Some UPS models have both port types (*cable* and *serial*). To guarantee the correct function of your UPS-Management Software use the default settings and the cable provided with the UPS or the software. Different cables will be required for different port types.

Enter the name or place of your server, in the section *Location* (e.g. „Berlin“).

Attention:

If you use a UPS-model with the port-type "*cable*", please notice that the values for Hold- and Recharge time are in accordance with the manufacturer´s specifications and should only be altered in special configurations since the UPS could be discharged before the system has been shutdown.

Step 2: **Selecting the serial port**

To select a serial port (*Comport*) click with the mouse on the check box on the right side of the menu. Do not change the default settings for speed/baud rate, unless you want to use a special UPS model. Most UPS have a fixed baud rate and must not be used with higher speeds than the default values.

Attention:

You have to select the correct serial port, because the UPS-Management Software is unable to identify the UPS automatically.

Corresponding to the UPS model you have selected in Step 1 the UPS-Management Software will automatically set the communication parameters. Usually you do not have to change these settings.

With this step the configuration is completed. With a mouse-click on *OK* you exit the menu. Save the new configuration into the file *ups.cfg* in the directory of the *upsman.exe. Upsman.exe* can be started now.

Custom Parameters

System parameter: Timeframe

UPS Check Rate	Defines the time-interval (in seconds) in which the UPS-Management Software polls data from the UPS. The system will be slowed down if this value is too small. If the value is too high the system will react more slowly in case of a power failure.
Broadcast Rate	Defines the time interval (in seconds) in which the UPS-Management Software informs the network user via the broadcast command during a power failure of the remaining time until the shutdown is initiated. NB. LAN Server only.
Logfile Update Rate	Defines the interval (in seconds) in which the UPS-Management Software logs the Input Voltage and Frequency Values.
Logfile Size min.	Defines the minimum time range (in hours) of the log file for Input Voltage and Frequency Values.
Logfile Size max.	Defines the maximum time range (in hours) of the log file for Input Voltage and Frequency Values. The log file will be set back to min. size (value of log file Size min.) if the log file contains more data than the configured value.

System parameter: System Shutdown

Enable System Shutdown	Defines if the system will start the shutdown routine in the event of a shutdown call from the UPS during a power failure.

Attention: **Make sure that this checkbox is active if you do not want to use a user-defined shutdown-job. If not, the UPS might be turned off during a power failure before the system has been shutdown.**

Downtime	Defines how many minutes before the UPS battery is discharged, that the shutdown procedure begins. This time interval has to be large enough to guarantee a proper shutdown of the system before the UPS is turned off. Ensure that this value is calculated on a large scale: (e.g.

	with 10 minutes hold time of the UPS, start the shutdown procedure at least 3 minutes before the batteries are exhausted).

System parameter: UPS Shutdown

The following functions are not supported by all UPS. In particular, devices with the connection-type *cable* do not support a schedule-controlled down and restore.

Enable UPS shutdown	Defines if the UPS will be turned off after the completion of the shutdown procedure of the server. This feature will enable the UPS to be turned off before a complete discharge of the batteries.
UPS down delay	Defines how many seconds after beginning the shutdown procedure (see Downtime) that the UPS will turn off. Caution: Take care that the system is down before this count down ends and the UPS is switched off. The timer for the UPS down command is initiated simultaneously with the system shutdown command. Eg. If the system shutdown starts 3 minutes before battery end, the UPS down delay is started at the same time. So if the UPS down delay is set to 120 sec., the UPS will be switched off after 2 minutes. So your system has to finish it's shutdown within 2 minutes.
UPS restore delay	Defines how many seconds after turning off the UPS that the system is turned on again. For most UPS types it is necessary that the power has been restored before the UPS has completely switched off.

File Configuration: Logging

Editor	Defines which editor is used for viewing the event protocol file.
Textfile	Defines the event protocol filename.
Datafile	Defines the filename of the log file for Input Voltage and Frequency Values.

File Configuration: Scheduler

Termin File	Defines the filename in which the data of the scheduler will be saved.

Job Configuration: Jobs

The software makes the execution of jobs (**.ncf-file*) available to enable you to adjust the UPS-Management software to your requirements. As standard the UPS-Management Software executes internal system event routines by the parameter "*own"*.

Broadcast

1. This job is executed during a power failure in the time-interval Broadcast Rate (see System parameter: Timeframe/Broadcast Rate), as long as the UPS is running on battery.
2. The system informs the user about the remaining up-time of the server, if parameter "own" is used.

Powerfail

1. This job is executed immediately after a power failure has been detected.
2. The system informs the user about the problem.

Restored

1. This job is executed when the power has returned and the UPS switched back to normal mode.
2. The system informs the user that the power has been restored.

.

Shutdown

1. This job is executed at the moment the system starts the shutdown (see System parameter: Downtime).
2. The system will be shutdown and the UPS may be switched off (if configured and the UPS is capable of accepting this command).

Attention: **If you created your own shutdown-job, you have to make sure that it has a down-command at the end of your script, otherwise the system will not be shutdown. In order to utilise this function, please use the provided OS/2 program shutcmd.exe**

With the OS/2 modules for WARP and LAN Server it is not possible to execute all programs and commands. The following table(s) is showing programs and commands, which can be executed with the UPSMAN and which not. “PM” stands for Presentation manager (Programs). The “PM” programs can be all kinds of OS/2 commands. None “PM” programs are batches, DOS commands or other comnands, which are not supported by OS/2. It is not possible to execute a batch file (*.cmd) from UPSMAN WARP. Please use the original OS/2 commands (not batch files) or utilise the LANSERVER UPSMAN

OS/2 UPSMAN Warp:

Job	PM-Programs	None-PM-Programs
Power fail	yes	No
NetMessage	yes	No
PowerRestore	yes	No
Shutdown	yes	Yes

OS/2 UPSMAN LanServer:

Job	PM-Programs	None-PM-Programs
Power fail	yes	yes
NetMessage	yes	yes
PowerRestore	yes	yes
Shutdown	yes	yes

All Jobs can now be called up with the parameters. The corresponding job needs to be entered with the full path, so that job can be executed, even it is not entered in one of the path-variables configured path.

3.6.3 Start UPS-Management Software

The *upsman.exe* is started from the OS/2 command shell. As a standard *upsman.exe* uses the configuration file *ups.cfg*.

If you want to communicate with the *upsman.exe* from a windows terminal in the network, start *upstcp.exe* after *upsman.* With this program the UPS data is available for any Windows *upsmon* using TCP/IP for Windows within the network. Notice that the TCP/IP protocol has to be installed in OS/2 and your WIN/OS2 for connecting from WIN/OS2 to UPSMAN.

3.6.3.1 Start with OS/2 2.x and Warp

Upsman.exe is a background process. To start *upsman.exe* enter "*start upsman"* at the command line.

upsman.exe can be started with the following parameters:

-v display of program information (process ID)

-s stops Upsman

To execute an automatic start of *upsman.exe* when booting the system, enter the command *start upsman* into the OS/2 file *startup.cmd*.

When using OS/2 Warp a reference can be created in the system start folder for an automatic start of *upsman.exe*.

Use the same procedure for auto-starting the network module *upstcp.exe.*

3.6.3.2 Start with Lan Server

Upsman.exe within LAN SERVER runs as a service. Before you can start *upsman.exe* you have to install the program as a service. For this purpose you have to make an entry to the file *ibmlan.ini*, directory *ibmlan,* section *services.* Enter the following lines, if you installed the software in the default directory:

upsman = c:\ups\upsman.exe

If you want to use the network module upstcp.exe, you have to enter a second line to the *ibmlan.ini*.:

upstcp = c:\ups\upstcp.exe

Now *upsman.exe* and *upstcp.exe* may be started from the command line by the commands *net start upsman* resp. *net start upstcp*. In addition, the services can be started and stopped via the *servicelist* or the commands *net stop.*

For an automatic start enter the above mentioned start commands into the file *startup.cmd*.

3.6.4 Stop UPS-Management software

3.6.4.1 Stop with OS/2 2.x and Warp

To stop *Upsman* enter the command *upsman -s* at the OS/2 command line.

To stop upstcp proceed accordingly. Notice, that upstcp should be stopped before *Upsman*.

3.6.4.2 Stop with Lan Server

To stop the *Upsman*, enter the command *net stop upsman* at the command line. Proceed in the same way for upstcp. Notice, that upstcp should be stopped before *Upsman*.

Otherwise both services can be stopped with the *servicelist*.

3.6.5 UPSMON OS/2

UPSMON for OS/2 is a simple tool for displaying the UPS data being managed by UPSMAN.

Start UPSMON from the command line. The current UPS status is shown on screen. Press any key to update the display and exit the program by pressing the *E key*.

Note that commandline UPSMON can only be executed on the computer running UPSMAN. Inorder to use the network capabilities of UPSMAN the Windows version of UPSMON must be used.

3.6.6 RCCMD for OS/2

To start RCCMD in the receiver mode (*listen*), please enter this line:

RCCMD -l [<address>] shutcmd.exe

Optional Parameter:

<*address*> Computer, from a RCCMD signal is accepted

To start RCCMD in the send mode (send), please enter this line into the *ups_exe.cmd*:

RCCMD -s <address>

Please enter the TCP address of the computer to which you want to send a RCCMD signal in the field <address>. The batch *waitups* and *sendups* might also be used. The option –a maybe used several times, if a shutdown should be initiated on a remote network server.

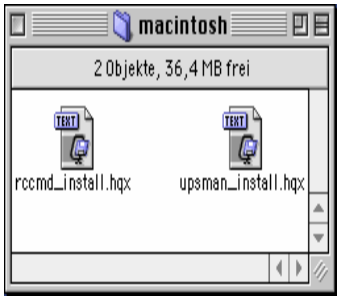
Do not use the CD License key more than once. (Copyright regulations page 1). If more RCCMD modules need to be installed for the shutdown, additional CD license key must be purchased. Additional license keys are available from your UPS dealer, whereas the CD can be used again for the actual installation.

3.7 Apple MacIntosh

3.7.1 UPSMAN Installation

MAC OS 9 is no longer supported, only RCCMD should be used on such older MAC systems. UPSMAN is currently only supported for MAC OS X 10.4 and higher.

1.



Ensure to be logged in as user root. (required). After inserting and opening the UPS-Management software CD, the user should drag or copy the files *./upsman.dmg* and *rccmd.dmg* from the CD-ROM directory onto the desktop.

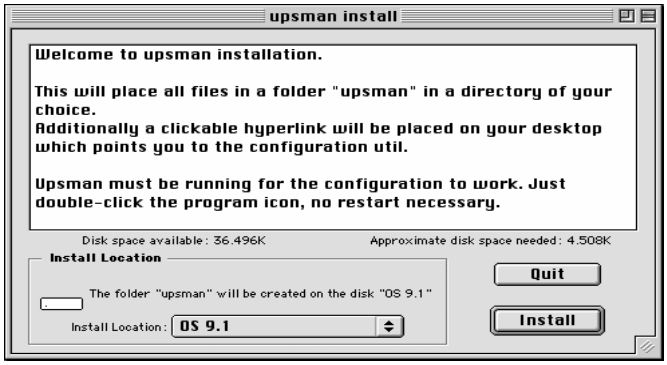
Figure 54 macintosh dmg installation files

2.

After unpacking, two installation archives are displayed:

Figure 55 macintosh rccmd install and upsman install

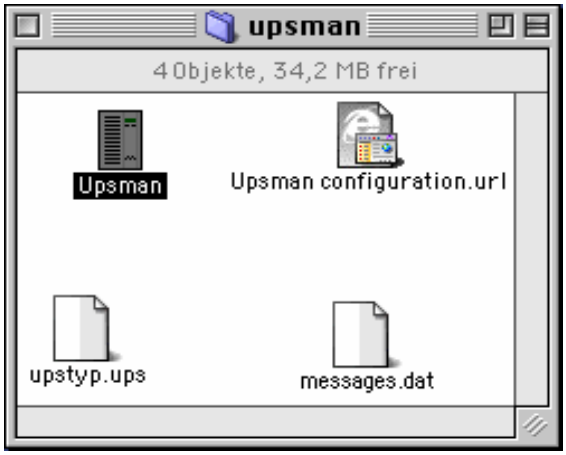
3.


upsman install
Welcome to upsman installation.
This will place all files in a folder "upsman" in a directory of your choice.
Additionally a clickable hyperlink will be placed on your desktop which points you to the configuration util.
Upsman must be running for the configuration to work. Just double-click the program icon, no restart necessary.
Disk space available: 36.496K
Approximate disk space needed: 4.508K
Install Location
The folder "upsman" will be created on the disk "OS 9.1"
Install Location: OS 9.1
Quit
Install

In order to install the archives the user needs to double-click the icons. The following window is displayed: (see chapter 3.7.3 RCCMD under MAC OS for RCCMD)

Figure 56 macintosh upman install startup

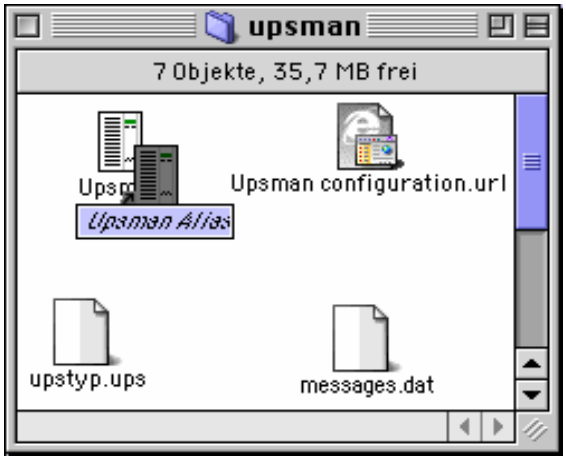
4.



By confirming the dialogue, the entry of the license key is requested by the software. After entering the correct licenses, the software installs into the following directory:

Figure 57 macintosh installation directory

5.



We recommend to create an alias from the UPSMAN and the UPSMAN configuration.url. The icons should be placed in the Apple menue or the desktop for easy access.

Figure 58 macintosh upsman alias

3.7.2 UPSMAN Configuration

The configuration under MAC OS is executed via a web-browser (Internet Explorer, Netscape Navigator). Please start the alias upsmanconfiguration.url by double-clicking the mouse on the icon. The following dialogue opens:

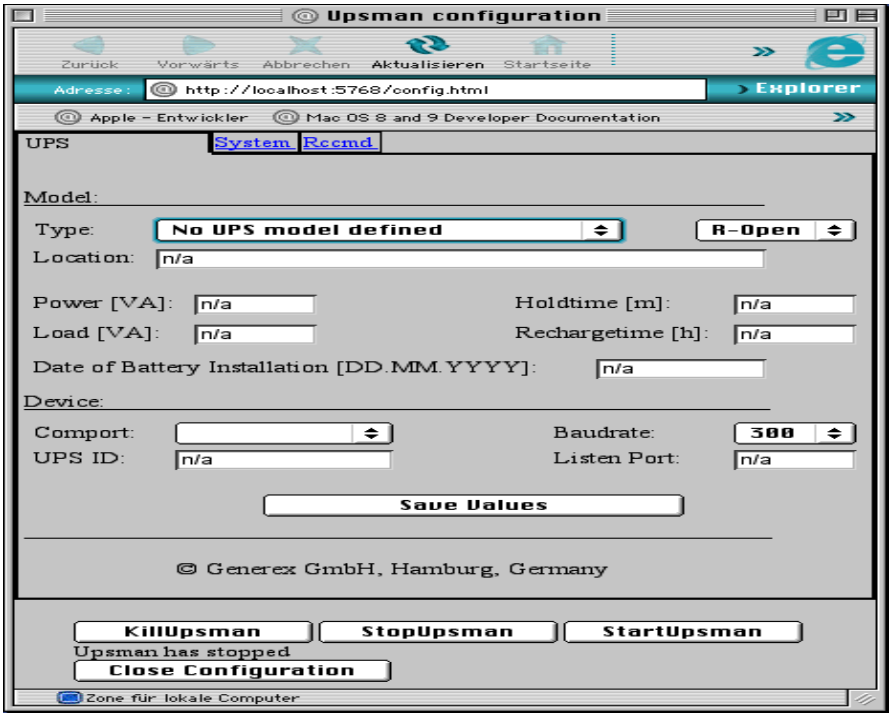


Figure 59 macintosh html UPS configuration tab

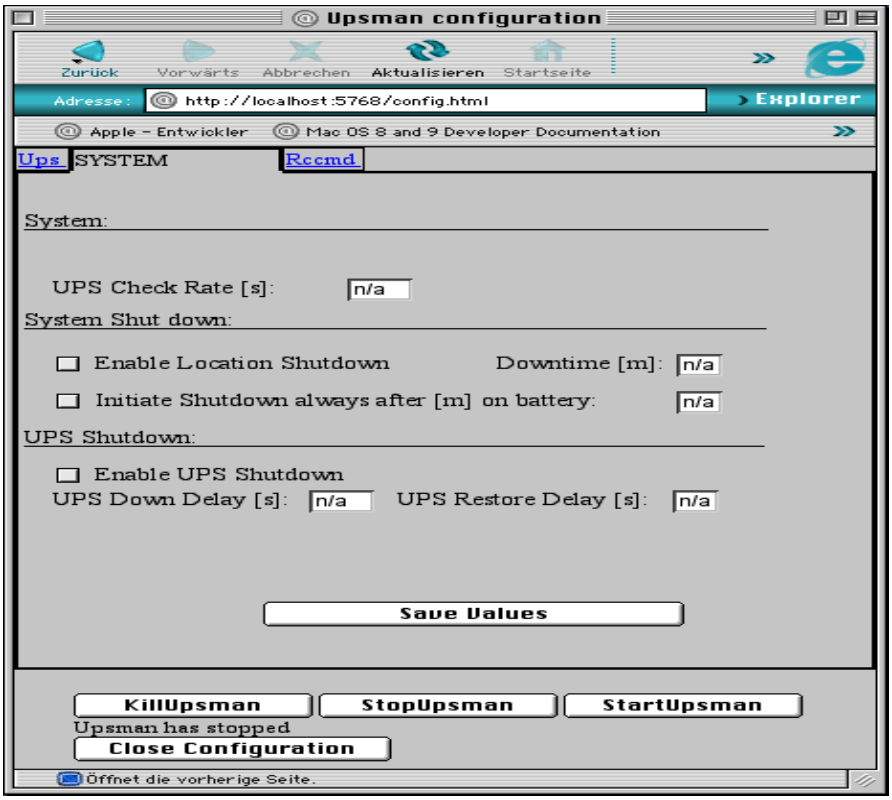


Figure 60 macintosh html System configuration tab

The configuration of the UPSMAN software under MACOS is similar to the Windows OS versions. However the menue "Special" is not available under Windows. We would therefore like to refer the user to the Windows configurations chapter in this manual. In the bottom part of he configuration windows of the UPS and System card, the user can use the features "KillIpsman", which stops the UPSMAN process until a restart is done,

"StopUpsman", which stops the UPSMAN and "StartUpsman", which re- starts the UPSMAN after the configuration.

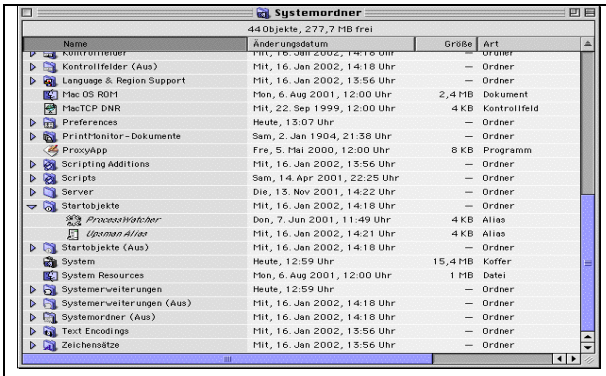


Figure 61 macintosh upsman auto start

Generally, the MAC OS configuration allows an automatic start when the computer is booted. Simply copy the UPSMAN alias into the Startobjects-Folder, which is located under: System folder>Start objects (see picture)

3.7.3 RCCMD under MAC OS 9 / MAC OS 10.X

The installation of RCCMD under MAC OS 9 is no longer supported, currently we support only RCCMD for MAC OS X 10.4 and higher. Following we describe the former MAC OS 9 RCCMD installation The RCCMD installation automatically copies an alias ontop the desktop (rccmd configuration.url)

1.

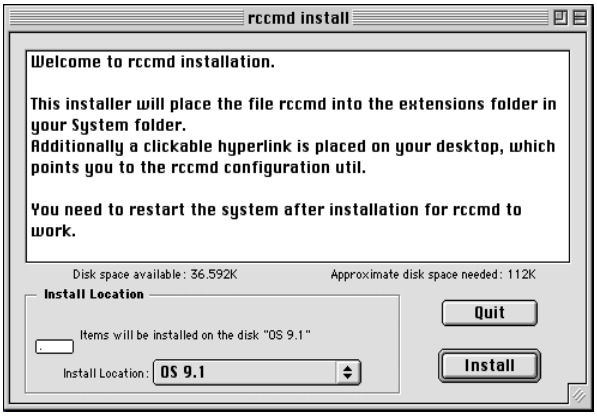

rccmd install
Welcome to rccmd installation.
This installer will place the file rccmd into the extensions folder in your System folder.
Additionally a clickable hyperlink is placed on your desktop, which points you to the rccmd configuration util.
You need to restart the system after installation for rccmd to work.
Disk space available: 36.592K
Approximate disk space needed: 112K
Install Location
Items will be installed on the disk "OS 9.1"
Install Location:
OS 9.1
Quit
Install

Figure 62 macinosh RCCMD install startup

After the installation of the RCCMD archives , the following dialogue opens:

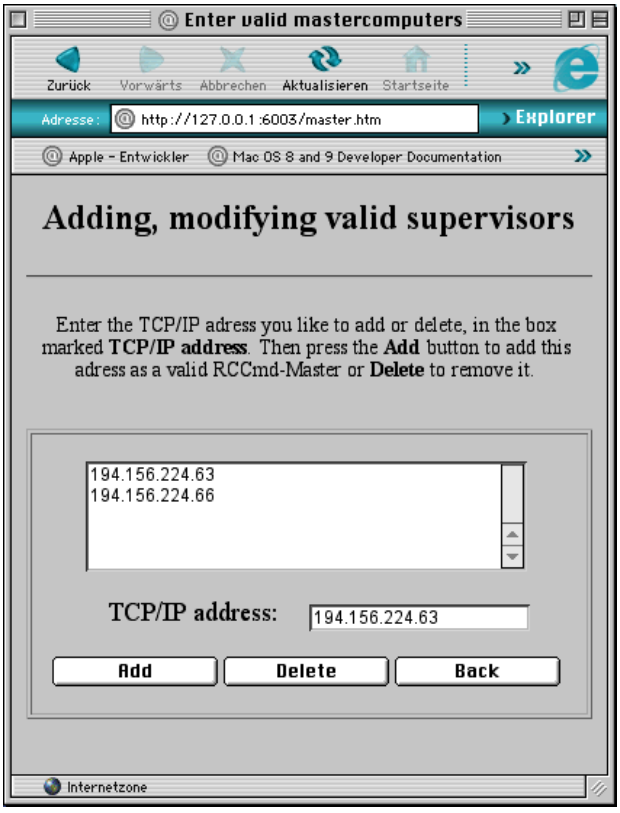
After restarting the computer, the RCCMD configuration tools can begin. In order to do this, please click on the alias "rccmd configuartion.url" A standard Web-browser (e.g. IE 5.x or Netscape Navigator 4.x) will start now.

2.

The following window opens

It is recommendable to execute the menue options from top down.

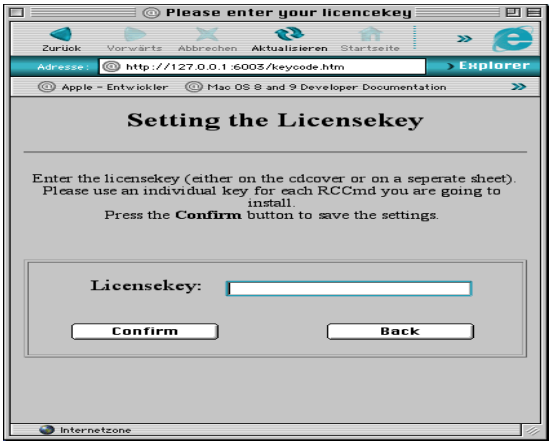
Figure 63 macintosh RCCmd configuration



This option allows the entry of the IP addresses of the RCCMD sender, those computers, which sends the shutdown signals to the remote computers (RCCMD clients). The configuration of the RCCMD sender is executed from the UPSMAN configuration. Please also check the RCCMD Windows section of this manual. Please enter the IP address(es) of the RCCMD sender into the field TCP/IP address" and click onto "Add" in order to add the address to the list. Repeate this method if several RCCMD sender should be in the list. To delete, simply highlight the IP address of a RCCMD sender from the list and click the "Delete" Button.

Figure 64 macintosh Add/ modify valid remote

stations



Please enter the license key, which came with the copy of your CD or the separate purchased RCCMD license (additional license). Please confirm your entry by clicking on "Confirm" The "Back" button, will take the user back to the RCCMD main menue.

Figure 65 macintosh Setting the licensekey

Please note the license regulations regarding RCCMD sender and clients. The standard version of the MAC OS UPS-Management software can send RCCMD (send) signals to an unlimited number of RCCMD clients. Per license only one RCCMD client can be execute a shutdown. Please contact your UPS dealer, if you require additional RCCMD licenses or order at www.generex.de.

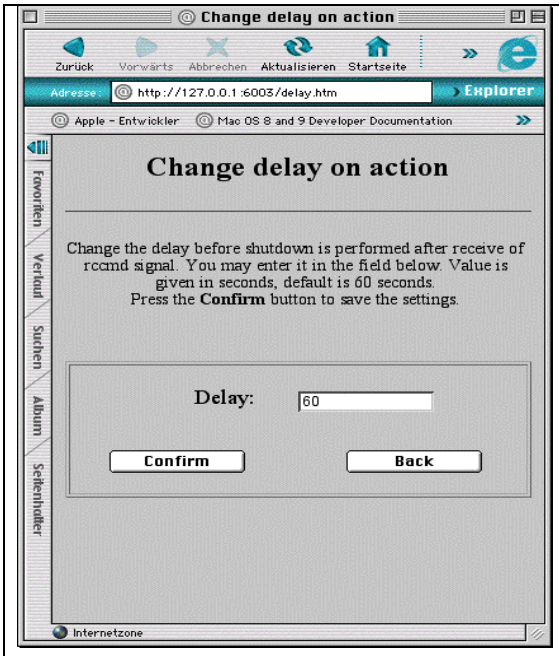


Figure 66 macintosh Change delay on action

The menue "Change delay on action" allows the user to enter a delay in seconds, before the shutdown of the RCCMD client(s) is initiated and after a shutdown signal is received. The default is 60 seconds –using "Confirm" will configure your settings.

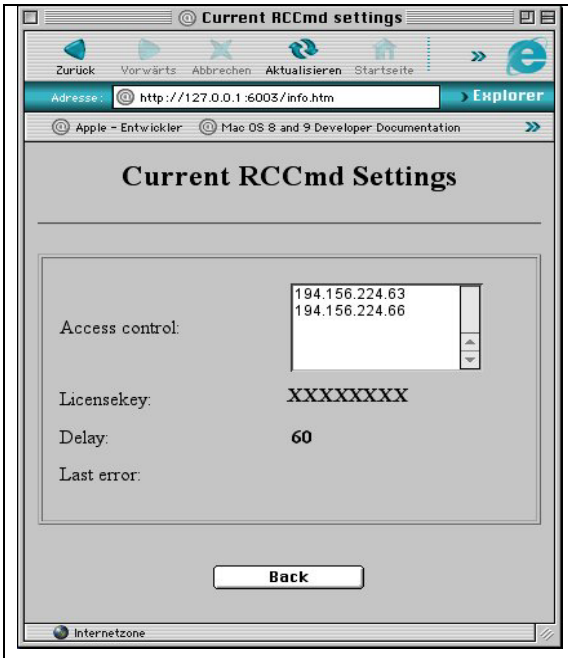


Figure 67 macintosh View current settings

This window shows the user the current RCCMD settings. The access control field shows RCCMD sender, which have sending authority, the license key, the current delay in seconds from the "Delay on action" feature, followed by the last RCCMD error report. The Back" button will bring you back to the RCCMD main menue. Generally, RCCMD is started automatically after a successful installation. If this is not required. Please remove the corresponding system extension from the system extensions folder.

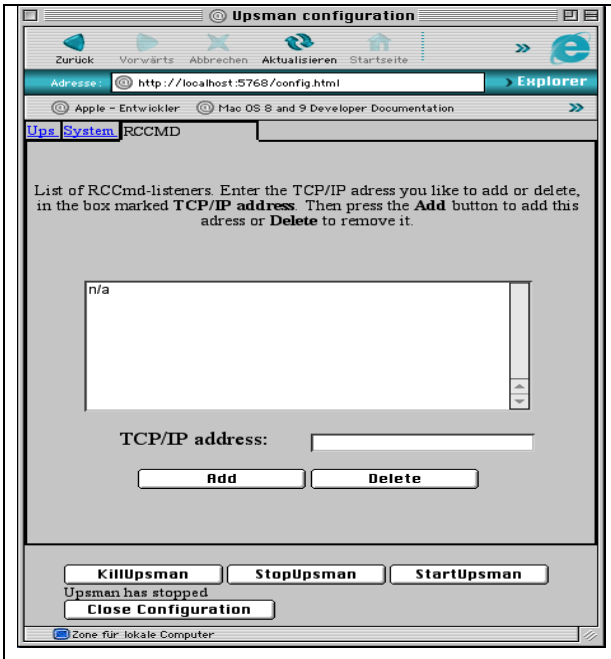


Figure 68 macintosh Add RCCMD receivers (RCCMD Clients)

Please start the alias „upsman configuration.url“, as described in the previous section, using your standard web-browser. The following dialogue opens:

Please enter the IP address(es) of the RCCMD clients in the field "TCP/IP address" and click "Add", in order to add the addresses to the list. Please repeat the method, if several IP addresses/RCCMD clients need to be added to the list. On the other hand, deleting a IP address is simply done by highlighting the corresponding address and clicking the "Delete" button. Please note the license regulations in the previous section "Setting the license key"

Equal to the UPSMAN Windows configuration, we recommend to limit the group/number of RCCMD receivers, because without a entry into the receiver list, all RCCMD receivers (clients) in the network will perform a shutdown (depending on license status), when a RCCMD sender signal is executed. The RCCMD configuration is now complete.

Installation under MAC OS 10.X:

- Ensure to be logged in as user root. (required)
- Open ./rccmd.dmg (on CD ROM in directory <MAC_X/UPSMAN>).
- Call rccmd.pkg to start the setup procedure.
- Choose the desired installation volume.
- Enter the licence key for MAC OS (The continue button is unabled unless a valid licence key has been entered).
- Choose the desired language and start the installation process.
- Continue with the configuration of RCCMD as described for MAC OS 9.

3.8 RCCMD AS400-Client

RCCMD for AS 400 an iSeries is not described in this manual, but has identical functions as any other RCCMD . RCCMD for AS 400 comes with a separate user manual with the product.

4 How to use the UPS-Management Software?

4.1 UPSMON for Windows with gCHART

The UPSMON is used to operate and monitor of the UPSMAN software. Once connected with a server, the UPSMON responds with the main screen, allowing all features to be operated.

After a connection has been established, the status main screen shows several windows, which are described below. For further information about working with Windows please refer to your MS-Windows manual or use the help site of UPSMON.

In the top part of the UPSMON screen you will find the menu- and the toolbar. The toolbar shows buttons for connecting to and disconnecting from a UPS server, adjusting the windows, printing, help, and information about the server-name. The type of UPS and the location where the UPSMON is connected to is shown in the title bar.

At the bottom of this window, the status bar is displayed. Actual UPS-status will be presented as text information.

The tool bar and status bar can be either hidden or in the foreground by choosing *Toolbar* and *Statusbar* from the menu *View*.

The Windows Installation of UPSMON implements gCHART, a dynamic log file visualising controller. This is a graphical log file viewer that is started after retrieving the log file data from the UPSMAN server by pressing the “get data log” icon. After which the data can be visually examined by Zooming-in with the mouse (CTR+left mouse button) and Panning

and Scrolling (Shift+Left mouse button). The graphical chart can be customized to a large degree to suite the viewing preferences of the user by selecting the options that are made available when clicking the right mouse button in the gCHART area. The gCHART feature is also supported by the CS121 adapters and an online demonstration is available at http://q01.generex.de/. The necessary gCHART plugin can be downloaded for free in the “Download > Firmware CS121 > gCHART controller for IE” area at www.generex.de.

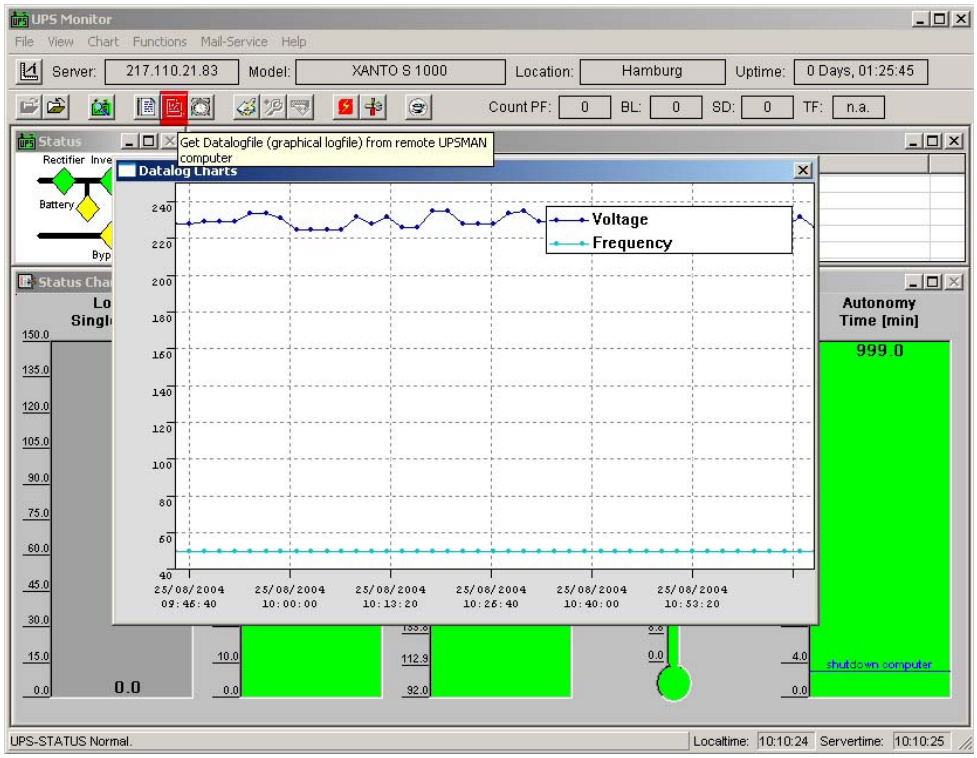


Figure 69 gCHART for UPSMON Windows

4.2 Connecting with UPSMAN

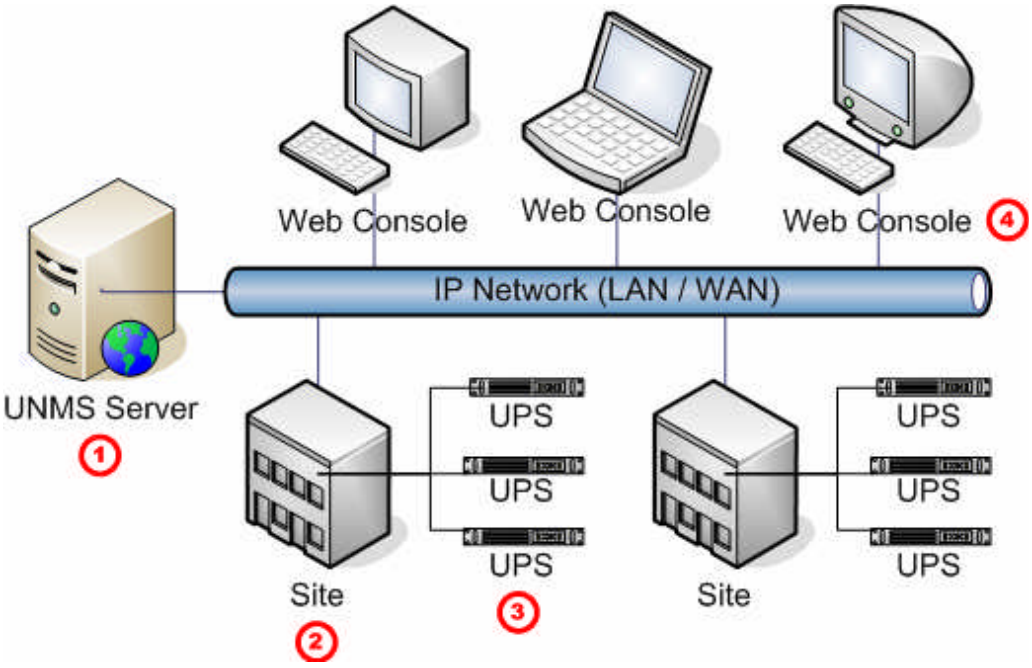
When UPSMON starts it will ask for a connection to a server. Choose the operating system and the transmission-protocol that you want to work with. TCP/IP is recommended as a communication protocol and is required for Windows 95/98/NT/2000, Novell and DEC VMS.

To start a connection click on the button *Connect*.

To build a connection to different processes enter the port and the IP-address, or host name respectively separated by a comma (e.g. 5769,192.10.200.6. The port address can also be left out, if the UPSMAN has been started normally. The entry of the IP address (191.10.200.6) is enough. We recommend using the TCP/IP protocol as a communication protocol.

4.3 UNMS – UPS Network Management System

UNMS II is a UPS network monitor designed to inform you of emergency power supply systems problems before your clients, end-users or managers do. The UNMS as a limited version is part of every UPSMAN license (UPSMAN suite contains UPSMAN RS232/USB UPS Manager, UPSMON Windows client and UNMS 2 – limited to 9 UPS). The UNMS Server Service runs intermittent checks on UPS devices you specify. When problems are encountered, the UNMS Server Service can send notifications out to administrative contacts in a variety of different ways (For example: Email). Current status information, historical logs, and reports can all be accessed via a web browser (Web Console).



No.	Name	Description
1	UNMS Server	The UNMS Server Service and the related Web-Server installation.
2	Site	A user defined group of services (For example: UPS devices).
3	UPS	A single service (e.g. UPS device) that is monitored by the UNMS Server.
4	Web Console	Web-Consoles provide sharing of management information by many people.

Figure 70 UNMS-Installation

4.4 The Displays

4.4.1 The Status display

The colours of the UPS-Service diagram show the criticality levels for the UPS and your system.

Green: OK and working.

Yellow: Ok, in stand-by or "Alert"

Red: Defect or Alarm

Grey/Blue: Not present

4.4.2 Status Chart

The window of the Status Chart displays the most important operating data of your UPS-system. For further information on this data please refer to the UPS-system manual. When the operating status is critical the displayed colours will change to red.

4.4.3 Event List

The Event list displays the current UPSMON-activities. Use the scroll bar for information about the UPS.

4.4.4 Scheduler

The Scheduler is a calendar which allows you to program UPS tests, commands, shutdowns, and start/stops of the system. The Scheduler is used for following functions:

1. start and stop of the UPS- and the computer system at programmed times;
2. automatic start of UPS tests;
3. start and stop of Economy mode and/or Bypass

Features of the Scheduler

Period-selection The jobs/functions may be executed *once*, *daily*, *weekly*, e.g. every Wednesday, or *monthly* at a programmed time. The command *time* lets you set the required time and date for this program execution.

Recurse This function defines at what day the desired job is started, when you use *daily*, *weekly* or *monthly.* Choice 1 means that the function is only to be executed on this exact date. Choice 2, 3, ... means that the execution will be only on every second, third, ... day, e.g. Recurse 2 together with the weekly settings means that the job will be only executed every second Monday. Recurse 3 together with monthly settings means that the job will be executed only every third month on the first day. Etc.

Job-list Here the programmed jobs (see below) will be listed. *State* displays the execution of the jobs. *Executed* shows that the job has been completed successfully. *Ignored* means that the job could not be started because the command was rejected from *UPSMAN*. *Played out* means that this job could not be started because the server was not active at this time. This job is no longer active. *Active* means that this job is waiting for the execution.

Drop-down menu Jobs Here you can define what jobs should be executed by the scheduler. You may choose from several test routines, shutdown procedures, and restart procedures. If you choose shutdown of the system a restart time command may be set.

As soon as all adjustments are completed, you can *Add* them to the Job-list. Later changes can be updated using *Change*. To delete a date from the list, highlight/mark this job in the list and click on *Delete*.

Ascending and *Descending* sorts the jobs in the list by date correspondingly.

4.4.5 Functions

To execute tests of your UPS system choose *UPS Functions* from the menu *Functions*. The results will be displayed in a table. The outcome of the tests depend on the settings of the manufacturer. *Selftest* is a UPS hardware check. *Battery Test* is a short test of the UPS working on battery. *Custom Test* switches the UPS on battery mode and will keep discharging the batteries until the "downtime" has passed. With this command you may check your batteries to see if they are still capable of supplying your system with the "downtime" configured autonomy. *Full UPS test* is a deep discharge of the batteries and is used for calibrating the battery. Tests should only be carried out if no user users are active. Some tests may be deactivated depending if the UPS supports those features.

Attention: **When running a UPS Full test, please note not to interrupt the test, as long as it is active. If the test gets interrupted, the software will configure the autonomy time as the time-span of which the test has been running on the UPS before it has been interrupted. A test can be re-started after a 8 hour waiting period.**

Note: **A manual reset is possible by starting the upsman.bat.**

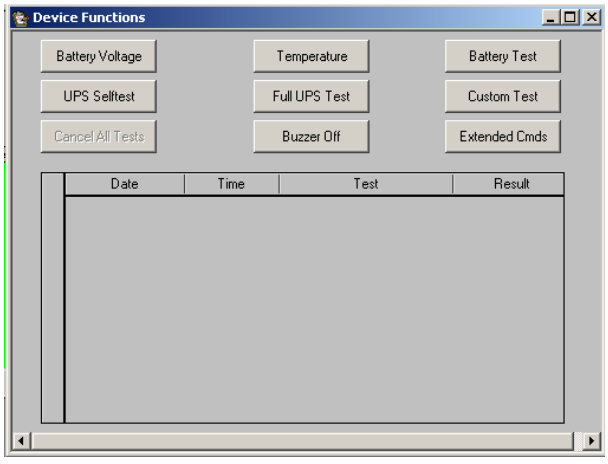


Figure 71 UPSMON device command window

4.4.6 Voltage- and Frequence-Chart

Here the input voltage and frequency values of the last 24 hours (default) are displayed in a bar or line chart/graphic. Depending on the UPS system (single or thriple-phased) one measurement per phase is recorded.

In the menu *File* choose *Get DataLog-File for Charts* and wait for the measurements to be transferred from *UPSMAN* to Upsmon. After the file transfer has been completed, you may display the measurements of voltage and frequency via the menu *Chart*.

The menu *Chart* lets you choose between a chart showing minimum/maximum-results or mean values.

The bar colours show whether the results have been outside the range of tolerance. The accepted tolerance of the UPS-rectifier is displayed by a blue-line.

To monitor a certain part of the recorded time period, use the command *Time Frame* from the menu *Chart*. After selecting a time period with the desired frame choose a voltage or frequency chart again to display the measurements. It shows only the measurements within this range (higher resolution of input data).

4.4.7 Textlog

In the menu *File* select *Get TextLog-File* and wait for the measurements to be transferred from *UPSMAN* to Upsmon. The event-protocol includes all UPS events that have occurred to date. A default UPS dump is printed if no errors have occurred. Only messages like "Power fail", "Alarm", "Overload", "Battery low" etc. show a unusual situtation.

The UPSMAN log file can also be opened directly from the UPSMAN directory, please use any standard text editor for this.

4.4.8 Mail-Events

In order to use the Mail events of the UPSMON, a conenction to the UPSMAN must be established. Sending of e-mail, as described in the *Email to SMS* section, will only work with an active, connected UPSMAN. Please read the example configurations for help with the syntax of "Qblat.exe".

To send a message at any event choose *Enable* from the *Mail-Service* menu and enter your Windows user name and password for the Mail server.

Now choose *Configuration* from the menu *Mail-Service* and select the UPS event for which you want to send a message (*Select*). Now enter a message text (*Message to send*) and the address (*Recipient*). Then enable the function. To add any recipient out of your MS mail directory click on *Insert Address from Mail-Service*. You may create a WORD or other document via this function. Please see the Windows user manual to see how to configure the internal MS-FAX service.

For further information on how to use MS-Mail, please refer to your Windows user manual or contact your Mail operator in your network.

4.5 UPSMAN Web-server and JAVAMON

The web-server containing the JAVA applet using a web-browser, allows the user a complete platform independent display of UPS data and adjustment of the UPSMAN configuration.

The UPSMAN program group in the start menu contains the icon to start the web.-server. The configuration of the UPSMAN can now be started using the web-browser. The following window opens, whereas the startup screen (JAVAMON) can be modified, as demonstrated here:

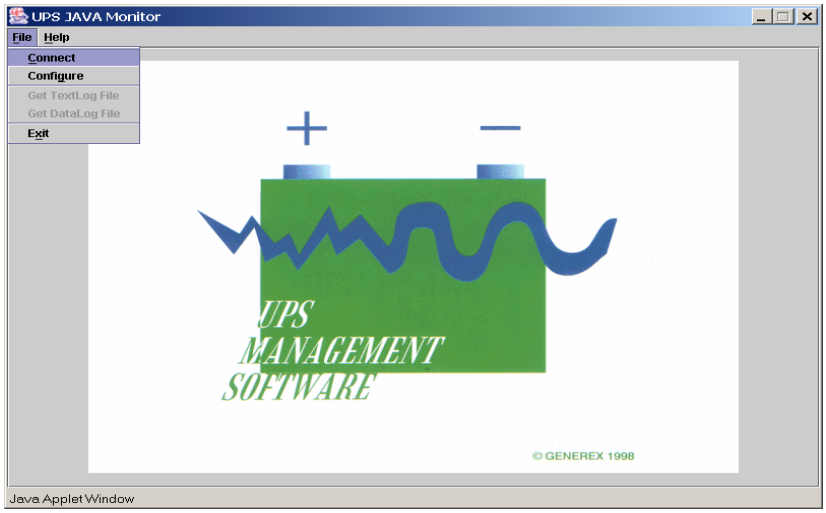


Figure 72 JAVAMON browser console

The connection to the UPSMAN is achived by clicking on the "Connect" option in the "File" menu. The user need to configure teh UP address of the computer, which is hosting the USPMAN process.

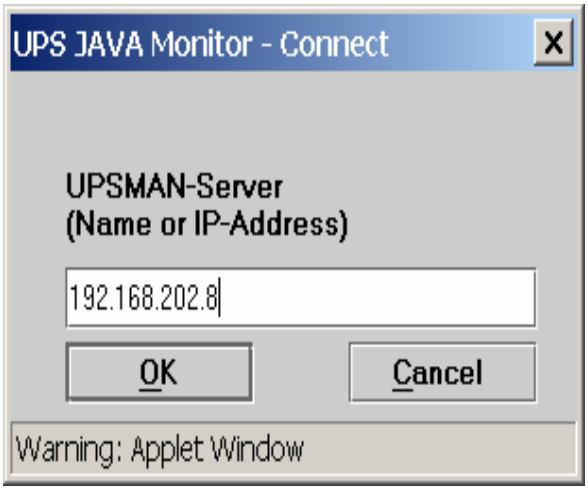


Figure 73 JAVAMON UPSMAN IP

Figure 74 JAVAMON UPSMAN SERVER

password protected

The two dialogues (above) show the password request, which protects the UPSMAN configuration.

This following window opens, showing the web-server after a succesful connect. (JAVAMON)

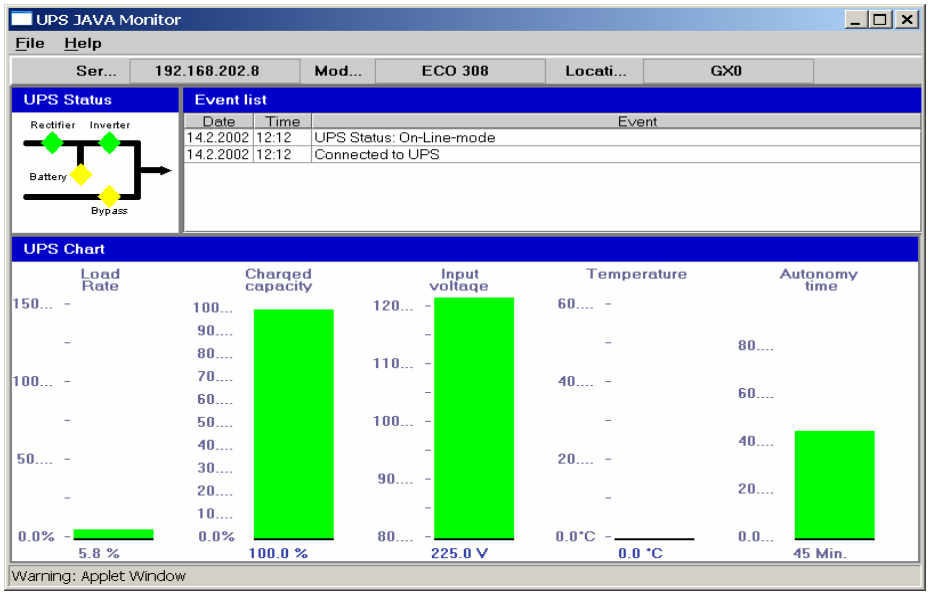


Figure 75 JAVAMON status display

This screen reflects the same information, as the well-known graphic tool UPSMON. The file menu contains the feature "Configuration", which allows the user to execute the complete UPSMAN configuration.

This configuration is identical to the local UPSMAN configuration. Please also check the UPSMAN Windows configuration. (See picture):

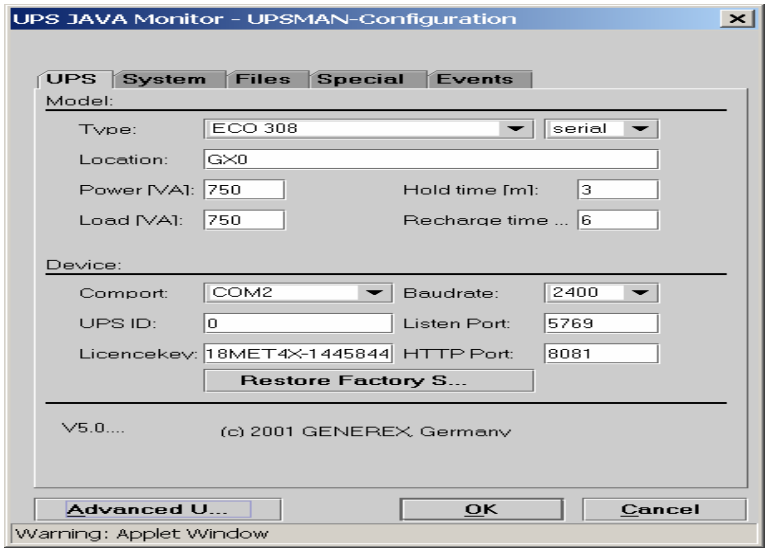


Figure 76 JAVAMON UPSMAN configuration

4.6 UPSMON for the command line

The Upsmon for Windows 95/98/NT/2000 is a command line programm which can be used in batch programs. All UPS values can be displayed and used for programming of batch files and scripts for the processing UPS information further. Also, the Upsmon activates all UPS functions and UPS tests. Because of this, UPS commands can be transferred from other applications to the UPSMAN. This interface allows the access to every UPSMAN in the TCP/IP network and the control of all connected UPS devices.

Parameter for the Upsmon

usage: upsmon <hostname or IP adress> <-vicdtrh>

-v	Program information
-i <value>	Query of a UPS-measurement
-c <ups command>	Execution of a UPS-function
-d <ups command with duration> <seconds>	Execution of a timed UPS-function
-t <ups test>	Execution of a UPS-test function
-r <ups test> <values>	Query of a UPS-test function result

status (4= OK)

- inputvolt
- battvolt
- temperature (in celsius)
- autonomietime (in minutes)
- autotime (in minutes)
- battcap (in %)
- batterycapacity (in %)
- outputpower (in %)
- inputfrequenz (in Hz)
- outputfrequenz (in Hz)

<ups command>

- testbatt
- batterytest

fulltest

canceltestbatt

cancelbatterytest

cancelshutdown

alarmreset (Buzzer off)

<ups command with duration>

shutdown

restore

<ups test>

customtest

batterytest

selftest

fulltest

shutdownrestore [down seconds] [restore seconds]

Please note that the answer depends on the typ of protocol of the UPS. Returns with "0" means that the values are available for this UPS model.

Example: Command for the Shutdown UPS and Restore:

./upsmon –d shutdownrestore 90 120

Note that UPS is controlled directly, a system shutdown is not initiated using the command "upsmon –t shutdownrestore [x] [x]“ The system needs to initiate its own shutdown routine after such a command. Please use the corresponding shutcmd.exe program, as in this example:

; Shutdown Batch for NT:

;

./upsmon <servername> -t shutdownrestore 60 90

./shutcmd.exe /L /Y /C /T:05 "Local shutdown now!"

Installation:

The program UPSMON.EXE requires a successfull installation of the UPSMAN in the network.

Please copy the program with the Dlls MSVCRT.DLL and MSVBD60.DLL into a directory on your Windows 95/98/NT/2000/XP computer. As soon as the UPSMAN is active via the TCP/IP connection, the program is ready for use.

The use of the UPSMON API with own software is possible, please contact your software support or the Generex directly.

4.7 Simple Network Management Protocol (SNMP)

The Simple Network Management Protocol (SNMP) is a worldwide standard communication protocol. It is used to monitor any device in the network via simple control language. The UPS-Management Software also provides its data in this SNMP format.

The file *upsman.mib* in your *UPSMAN* directory describes the data that can be requested via SNMP. Upon til now. The software works with a private MIB, whereas Version 4.3x is using the standard MIB RFC 1628 (last quarter 2002, which already exists in most SNMP applications and does not need to be compiled.

With any SNMP-Management software (e.g. HP-OpenView, Novell NMS etc.) capable of compiling an external MIB it is possible to connect to the *UPSMAN* SNMP agent and execute/react to UPS-specific functions. For this, the operating system on which you are using *UPSMAN* must be SNMP-compatible.

The UPSMAN software supports the SNMP interfaces from Windows NT/2000, Windows 98 (from 1999) OS/2 and NovellNetWare. On all other operating, supported by the UPSMAN a SNMP access to the UPS is not possible. An adapter (SNMP-adapter) must be used in those cases.

4.7.1 UPSMAN with SNMP on NovellNetWare

In order to send UPSMAN traps via the SNMP protocol, SNMP must be installed on the Novell server. The following example shows a basic configuration under NetWare 4.11.

Change to the system console and enter "load sys:inetcfg.nlm"

The programm for the configuration of network components will be loaded afterwards.

Please choose the entry "Manage Configuration"

Please choose the entry "Configure SNMP Parameters"

Here the SNMP parameter "get" and "set" and the "Trap Targets" (NMS) have to be adjusted.

Please see the following window:

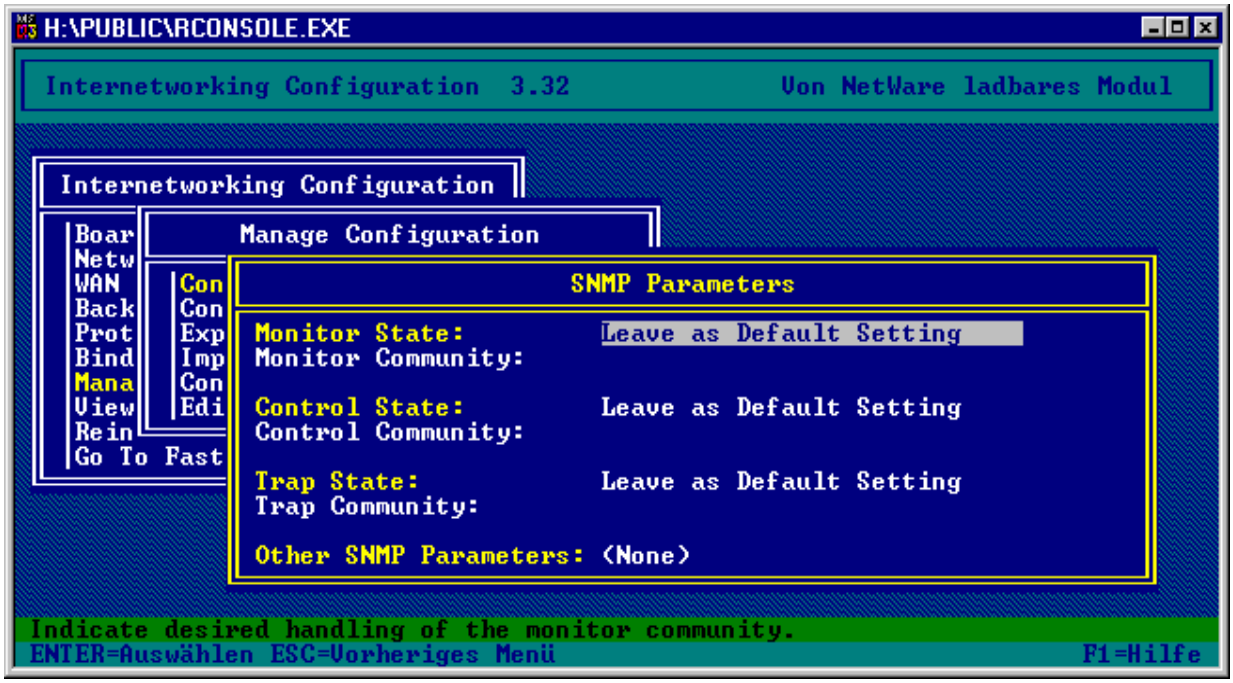


Figure 77 Novell SNMP parameters

Monitor State: Defines which communities are allowed to ask for "get" information.

Monitor Community: Default setting: public

Control State: Defines which communities are allowed to set operations with ”set”.

Control Community: Default setting: public

Trap State: Defines to which communities ”traps” send to.

Trap Community: Default setting: public

Other SNMP Parameters: Additional entry

Please adjust the above mentioned entries to your SNMP network and continue with the configuration of the SNMP information.

Please choose the entry "Configure SNMP Information". In this entry general settings for the hardware, location and the system administrator are configured with informativ character. The entries made here are saved in the *sys:etc\snmp.cfg* file.

In order configure a NMS, please change from the entry ”Manage Configuration" to "Protocols" and choose TCP/IP.

In the menu "SNMP Manager Table" the TCP/IP address of the management station is displayed, to which traps can be send to.

4.7.2 UPSMAN with SNMP on OS/2

To be able to connect to the UPS-functions via SNMP you have to install and configure the OS/2-support for SNMP (SystemView Agent for OS/2) and the TCP/IP-network-protocol first.

Configure the address of your management station that is able to access the SystemView Agent. Here you can enter a single IP-address or a complete net. Additionally configure your management station as the trap-target.

SNMP / Upsagent under OS/2 Warp Version 4

Install the SNMP demon as described in the OS/2 manual and configure the service with the following values:

Protocol: UDP

Name: public

IP-Address: e.g. 192.10.200.0. The SNMP Demon can receive information from all stations.

e.g. 192.10.200.52. The SNMP Demon can receive information from all stations.

SNMP Parameter: -transport udp -dpi tcp

If the installation has been completed successfully you should receive a cold boot-trap on your management console. In addition you will be able to access the Systemgroup data.

SNMP-support is not included in *upsman.exe*. Start the SNMP-component *upsagent.exe* after loading *upsman.exe*. Enter the following command line to start *upsagent.exe*:

upsagent.exe -h <address> -c <comunity name>

-h <address> Address of the computers that you installed the SystemView Agent on.

-c <comunity name> Comunity String. (z. B. ”public”)

4.7.3 UPSMAN with SNMP on Windows NT/2000/XP

To be able to connect to the UPSMAN via SNMP you have to install and configure the Windows NT/2000-support for SNMP (Control panel, network settings, services, SNMP service) and the TCP/IP network protocol first.

Choose the icon network from Systemcontrol and then add components.

After the SNMP service has been installed you have to configure the SNMP service via the control panel icon *Network*. Enter the community string of your management station and the address of the trap target and enter the Systemgroup.

Note: **The Generex UPS-Management software also supports non-generex SNMP adapter. A connection to the UPS maybe via SNMP adapter is possible, whereas actual SNMP software is not required. SNMP adpter from other manufacturers are also supported.**

Start the SNMP-service from the command line by

net start snmp

or start the SNMP service with the help of the icon *Services* from the control panel. If the installation has been completed successfully you should receive a cold boot trap on your management console. In addition you can access Systemgroup data.

In order to connect the UPSMAN software and an SNMP adpter is it required to start the SNMP service. The UPSMAN computer needs to be configured in the SNMP adapter. Please also refer to your SNMP adapter installation manual.

UPSMAN Configuration

The SNMP adpter can easily be selected from the list in the UPSMAN configuration. The UPSMAN computer must have the IP of the designated adapter with community code placed into its address and vice versa, the address of the UPSMAN computer must be placed in the SNMP communities table with a matching communities code and with both read and write priviledges. The UPS Check rate (see right-hand picture) should be lowered once the UPSMAN is connected with the SNMP adapter otherwise, the default settings in the UPSMAN will cause high network traffic.

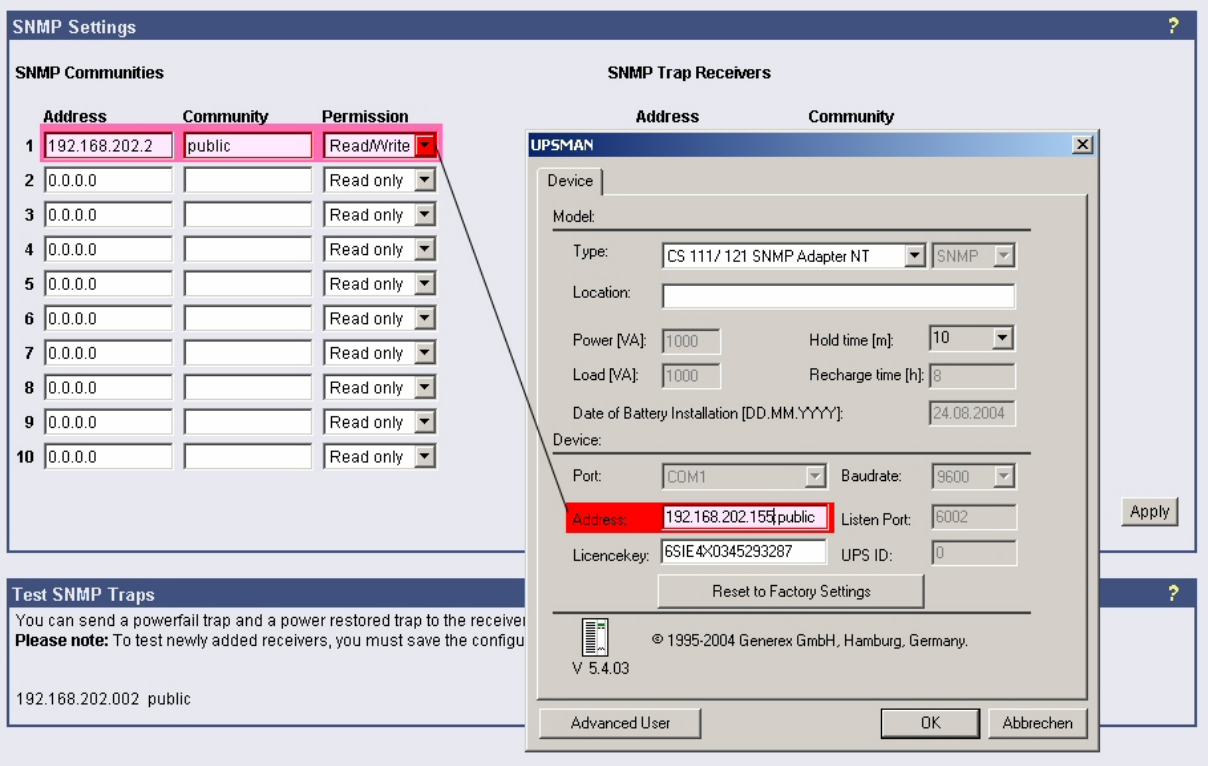


Figure 78 UPSMAN model type SNMP adapter

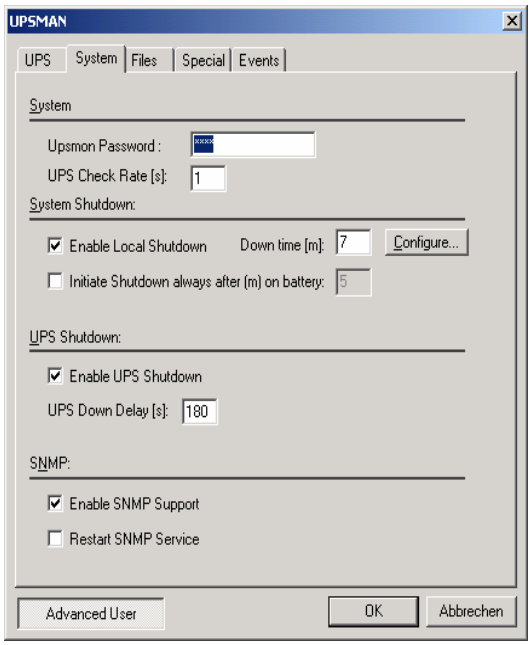


Figure 79 UPSMAN System UPS check rate

Next, select the icon UPSMAN from system controls and activate the check box of the SNMP-service (*Enable SNMP Support)*. Check that UPSMAN starts correctly and SNMP communication is established. See System Event Viewer or the UPSMAN log file for this information. If you receive a display message ”SNMP communication cannot be started”, please stop the UPSMAN software and the SNMP service manually. Start both again (SNMP first, then UPSMAN) and check the information about the start of the UPSMAN SNMP service. You can also check with the text log file, which is containing this information.

Note: **Please refer to Troubleshooting section in this manual, which gives solutions to problems and advice on how to use the UPSMAN software under Windows NT/2000.**

Appendix

A Supported Systems

The UPS Management Software supports all current operating systems. Please use our internetsite for updates and additional information. http://www.generex.de

B Know-How Pool

In this section you will find a collection of know-how informationof different operating platforms and operating systems. Please note that an update of to the latest version of the UPS-Management software will solve many problems and minor "bugs". Please contact your UPS dealer or visit our webs ite under http://www.generex.de The free update to the latest version of the UPS-Management software is available from CD version 4.17.

Change UPSMAN Window start-up in the registry

This can be done by changing the script, please change the path:

Hkeylocal_miachine\systtem\currentcontrolset\services

in the registry and find the entry start. This enrty should be set to 0x2 (automatic) by default, 0x3 (manual) and 0x0 means that the driver will be loaded by the Kernel loader at startup. However, 0x1 means that the dribver will be loaded by ethe I/O subsystem at Kernel startup.

Example settings SUN Solaris 2.6, 2.7 : TTY configuration

Settngs of the serial interface with the admintool:

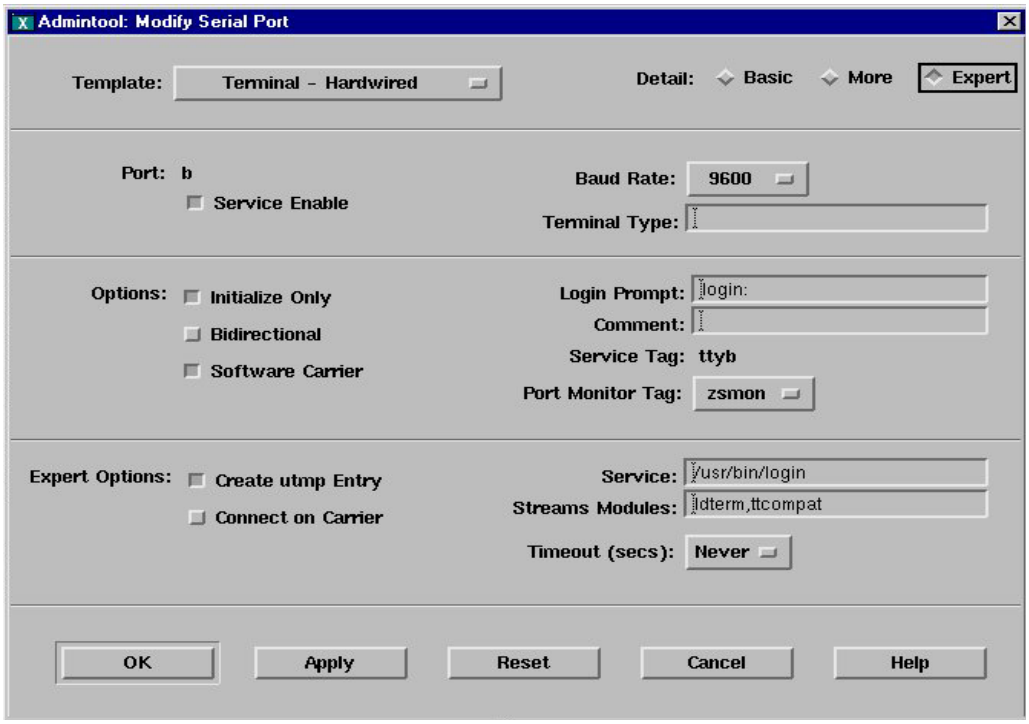


Figure 80 Example settings SUN Solaris 2.6, 2.7 : TTY configuration

DEC UNIX / COMPAQ TRUE UNIX with CABLE 2:

A comprehensive test seies had the following result. This demonstrates that Unix is supporting "cable 2" Please also check with the section "Cable types" section of this manual.

UpsModel=No UPS model defined
UpsCable=Typ 2

Pin 2+4:
=> UPS ALARM / UPS POWERFAIL!

Pin 2+4+5:
=> BATTERY LOW
=> UPS ALARM / NOW SYSTEM SHUTDOWN!

HP OPENVIEW Bug_ RFC 1628 Trap receiver does not interprete correct MIB 2 Traps from CS 111.

This bug is know in HP OV 5 and 6 for Windows NT. The moment the trap definition is manually changed, HP OV transforms the version 2 trap indentifier in to version 1.

How to override: You can manually correct in the trapd.conf file. You will see that the trap ID has changed from

1.3.6.1.2.1.33.2.1 to 1.3.6.1.2.1.33.0.1 (this is trap 1 ! - not trap 2). Change this string to **1.3.6.1.2.1.33.2.1** again to correct this problem. – Or change inside the CS 111 configuration the MIB 2 trap default to MIB 1. (Or await for fix from HP.)

Example: TCP/IP minimum configuration for NetWare 3.12 Server

load the tcpip.nlm

LOAD TCPIP

laoding of the network card driver

in this example, a IntelEtherexpress card

with corresponding driver from the manufacturer epro.lan

LOAD EPRO PORT=340 INT=A FRAME=ETHERNET_II NAME=EPRO_TCPIP

connecting the IP Protocol to the network card

BIND IP TO EPRO_TCPIP ADDRESS=192.111.112.113

Disabling the Plug´n Play search process on serial interfaces at Windows 95/98. This recommend when the UPS switches off during the boot process of the computer.

Start the hardware assistent (control panel)

Do not allow a search for new hardware, activate the NO button for a manual search.

Choose „other components“

Confirm the search on a disk

Change the search path from A: to the directory on your Windows directory where the files COM9598.INF and Sampappl.txt.are located.

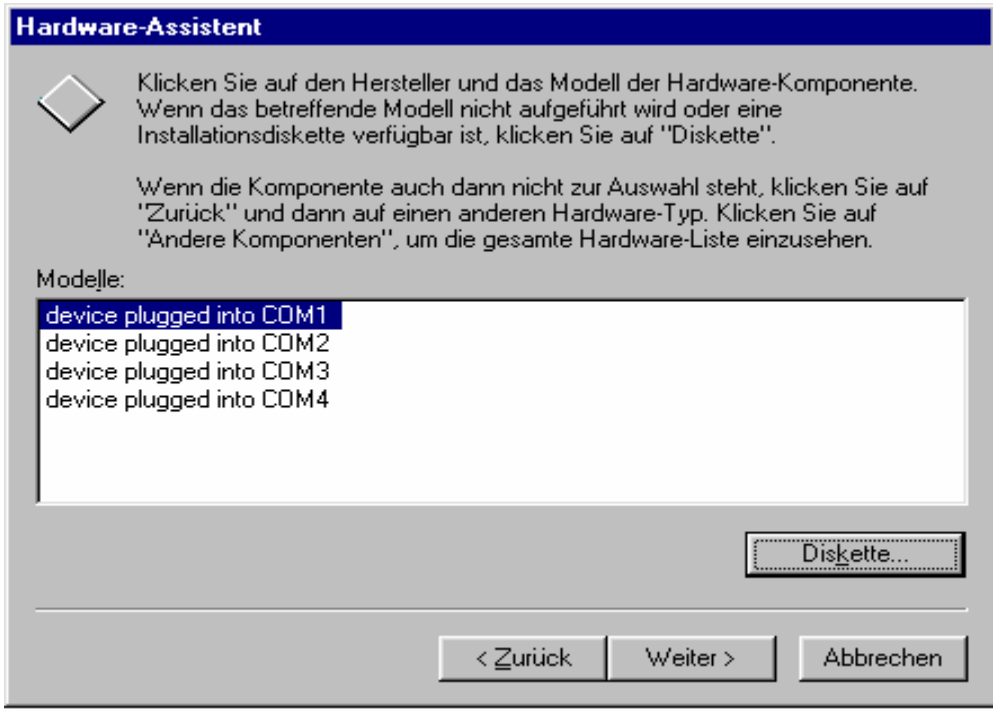

Hardware-Assistent
Klicken Sie auf den Hersteller und das Modell der Hardware-Komponente.
Wenn das betreffende Modell nicht aufgeführt wird oder eine
Installationsdiskette verfügbar ist, klicken Sie auf "Diskette".
Wenn die Komponente auch dann nicht zur Auswahl steht, klicken Sie auf
"Zurück" und dann auf einen anderen Hardware-Typ. Klicken Sie auf
"Andere Komponenten", um die gesamte Hardware-Liste einzusehen.
Modelle:
device plugged into COM1
device plugged into COM2
device plugged into COM3
device plugged into COM4
Diskette...
< Zurück
Weiter >
Abbrechen

Figure 81 Hardware wizard

Choose the Com port from the list where you want to connect the UPS to.

Confirm your choice with „continue“ and finish the installation .

At the next reboot this com poprt will no longer monitored by Plug & Play.

HP OV SNAP IN under HP UNIX:

Configuration for HP-OV-Snap-in:

in /etc/opt/OV/share/registration/C

the following file must be present: *upsmonov.reg*

After the reboot, the process *upsmonov* must be present in the process list. This process incorporates normally all objects, which are SNMP supported and also support the RFC1628-MIB or PPC-MIB.

Please check the following picture:

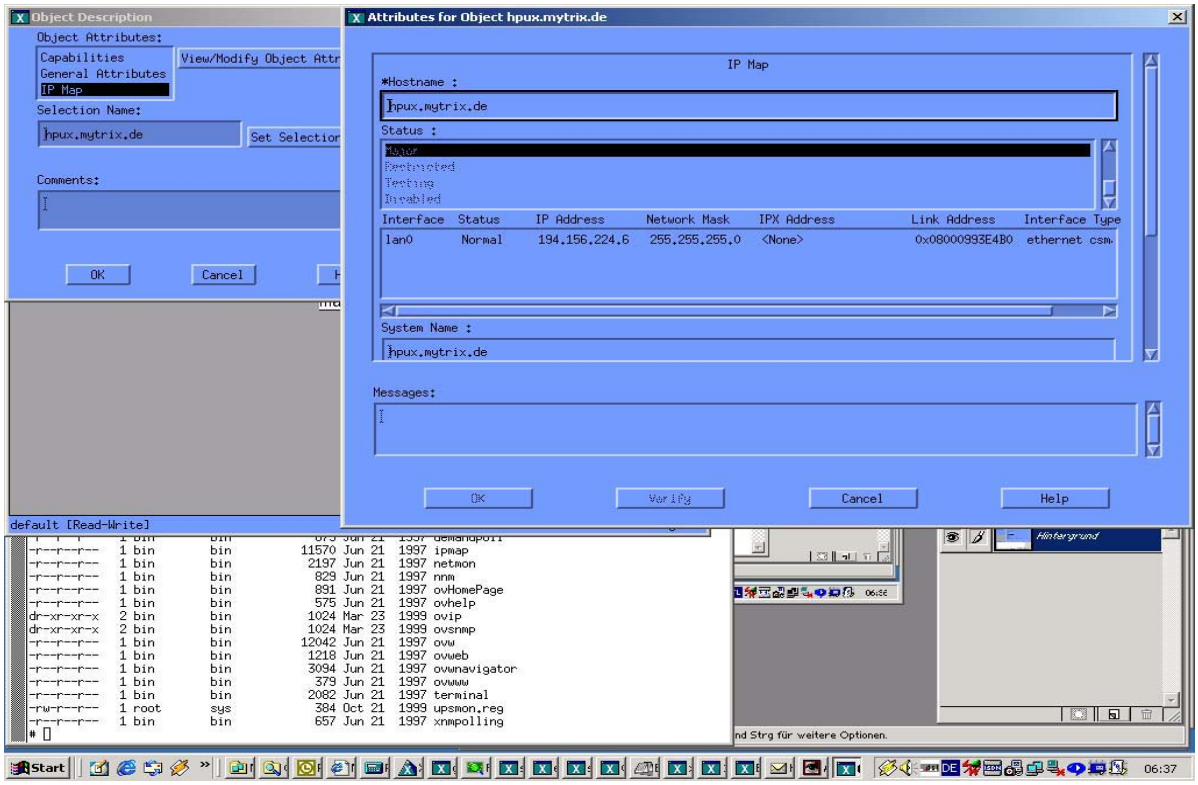

Object Description
Object Attributes:
Capabilities
General Attributes
IP Map
View/Modify Object Attr
Selection Name:
hpux.mytrix.de
Set Selection
Comments:
OK
Cancel
Attributes for Object hpux.mytrix.de
IP Map
*Hostname :
hpux.mytrix.de
Status :
Major
Restricted
Testing
Disabled
Interface Status IP Address Network Mask IPX Address Link Address Interface Type
lan0 Normal 194.156.224.6 255.255.255.0 <None> 0x08000993E4B0 ethernet csm
System Name :
hpux.mytrix.de
Messages:
OK
Verify
Cancel
Help
default [Read-Write]
-r-xr-xr-x 1 bin bin 11570 Jun 21 1997 ipmap
-r-xr-xr-x 1 bin bin 2197 Jun 21 1997 netmon
-r-xr-xr-x 1 bin bin 829 Jun 21 1997 nnm
-r-xr-xr-x 1 bin bin 891 Jun 21 1997 ovHomePage
-r-xr-xr-x 1 bin bin 575 Jun 21 1997 ovhelp
dr-xr-xr-x 2 bin bin 1024 Mar 23 1999 ovip
dr-xr-xr-x 2 bin bin 1024 Mar 23 1999 ovsnmp
-r-xr-xr-x 1 bin bin 12042 Jun 21 1997 ovw
-r-xr-xr-x 1 bin bin 1218 Jun 21 1997 ovweb
-r-xr-xr-x 1 bin bin 3094 Jun 21 1997 ovwnavigator
-r-xr-xr-x 1 bin bin 379 Jun 21 1997 ovwww
-r-xr-xr-x 1 bin bin 2082 Jun 21 1997 terminal
-rw-r--r-- 1 root sys 384 Oct 21 1999 upsmon.reg
-r-xr-xr-x 1 bin bin 657 Jun 21 1997 xnmpolling
Hintergrund
Start
06:37

Figure 82 Configuration for HP-OV Javamon

in /etc/opt/OV/share/registration/C the following file must be present: u*psmon.reg*
The following must be configured in the symbol properies for the object:

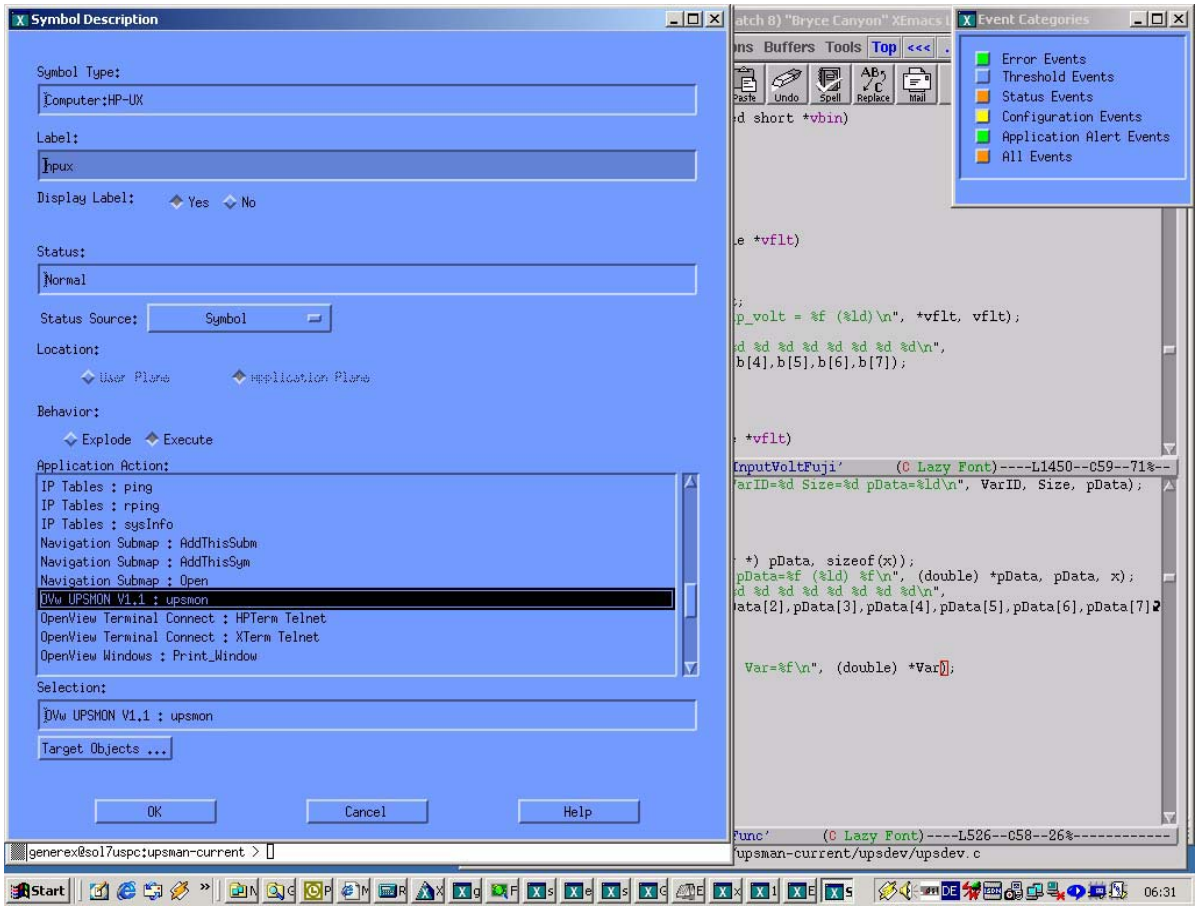


Figure 83 Symbol/ object properties

RCCMD HP UNIX: What does the RCCMD return code mean, when RCCMD is started. It seems that it is a random figure everytime when RCCMD is installed.

The interval is 2 several times (e.g. 250, 252, 254; and then e.g. 180, 182, 184) ?

After the start of RCCMD the program starts as background process immediatley, whereas the parent process is terminated as usual.

The "return code" is no actual return code, but a process id of the started RCCMD. The return code cannot be used to test, whether RCCMD is running or not. The test needs to be done differently:

The RCCMD has the characteristics to run in the background after startup. This is why there is no result, if the user quiries the exitcode via a script. In order to see whether RCCMD is running properly, the following method should be used:

LANG=${START_LANG} ${CMDStart} -l -a aatap1 -p 6003 /usr/ups/upsalarm

ps -eaf | grep '-p 6003 /usr/ups/upsalarm' > /dev/null RTC

UNIX information to UPSMAN Autostart at SGI IRIX:

To start the UPSMAN automatically the start and stop scripts should be inside rc2.d directory or

inside rc3.d ("nfs" Mode)

Installation instructions for UPS Management Software/JAVAMON into a MS Internet Information Server (IIS) environment.

Install UPS Management Software, select Upsman component. (Do NOT select upsman http server!) Set-up will ask later to install ONLY the files to a specific directory. Choose a directory, i.e. c:\inetpub\ups_http and proceed the installation.

Open the IIS management console. Create a new website, i.e. UPSMAN HTTP with read permission and choose c:\inetpub\ups_http (see above) as the default directory. (pic. iis5-1.bmp, iis5-2.bmp)

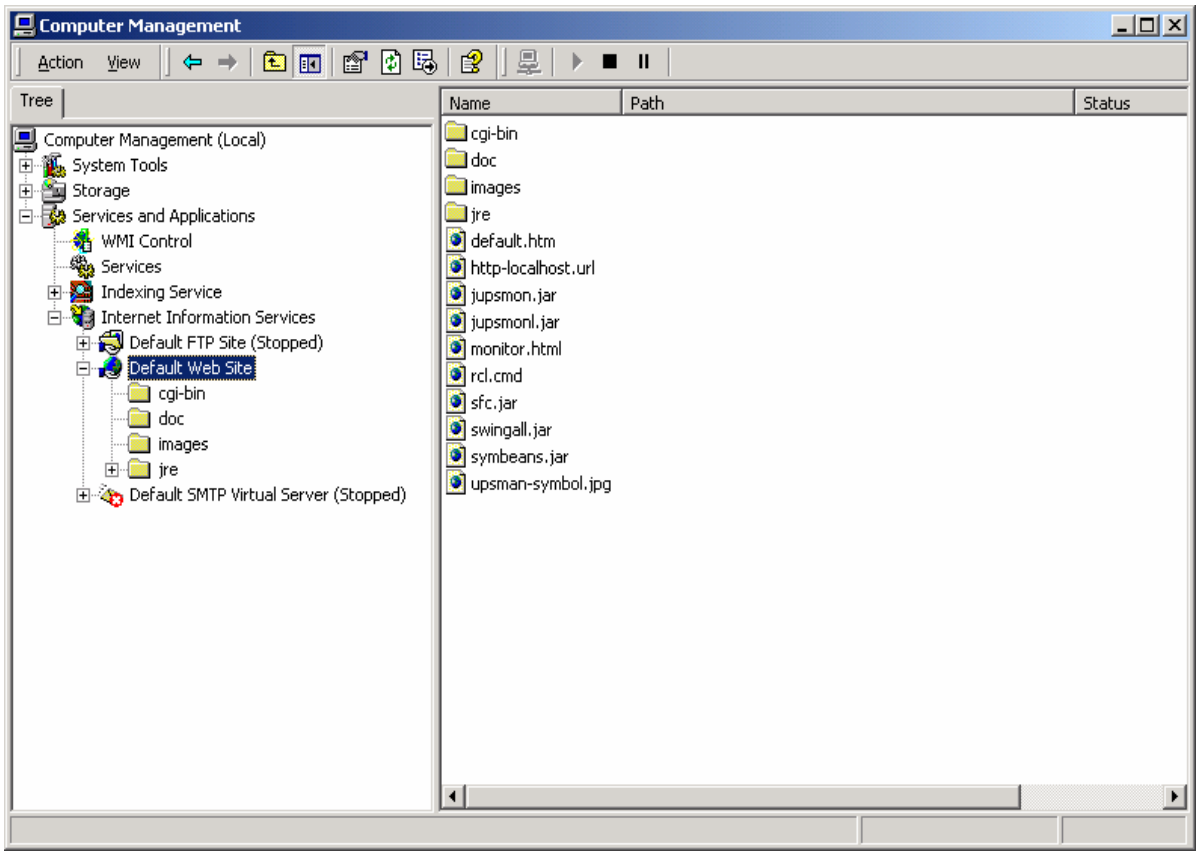


Figure 84 UPSMAN and Windows IIS

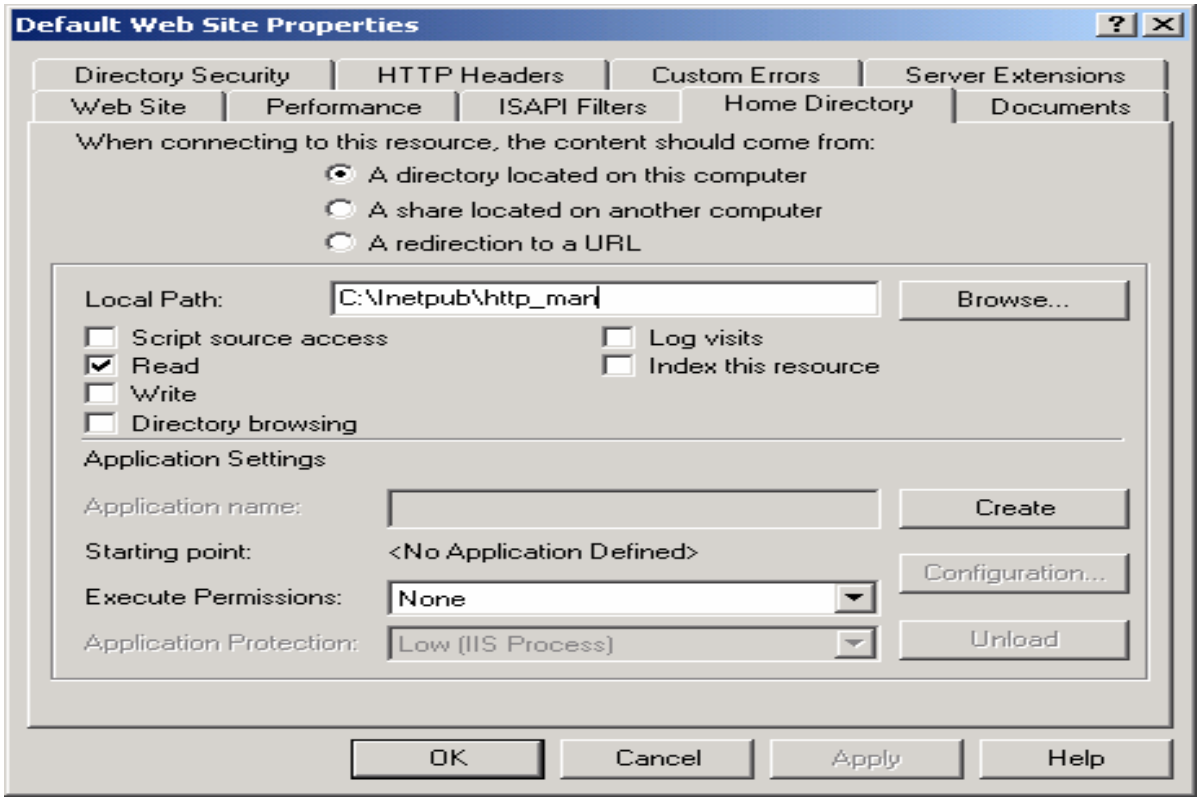


Figure 85 Web site properties for UPSMAN

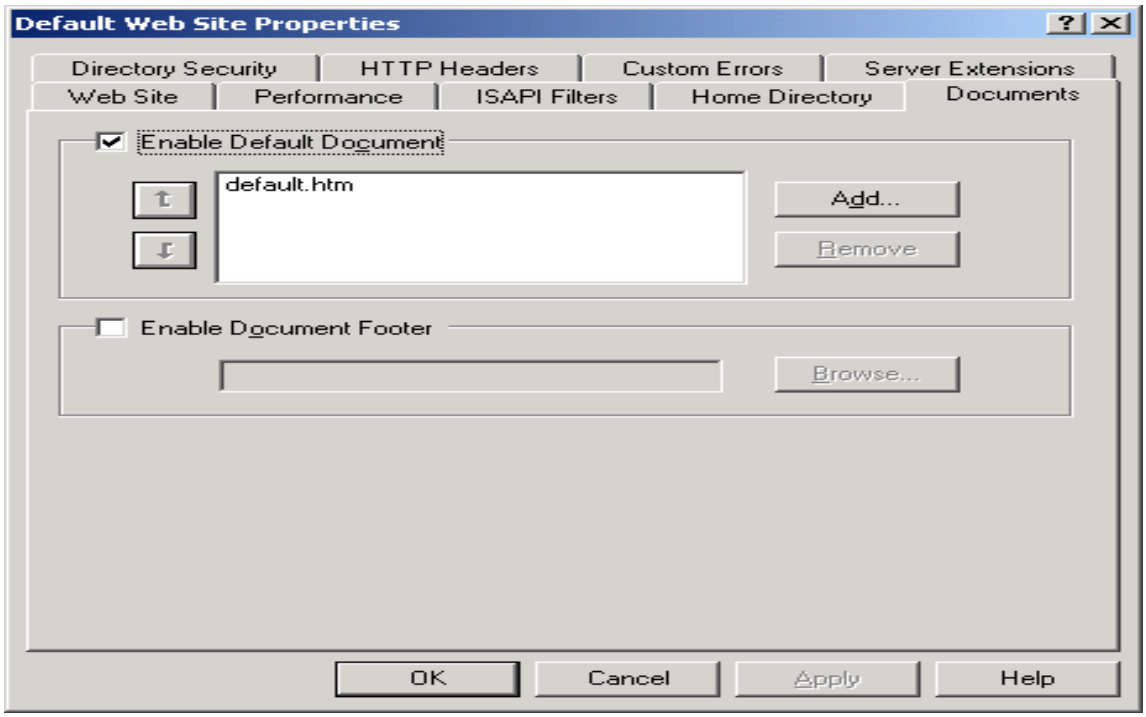


Figure 86 Please use the "default.htm" as default document:

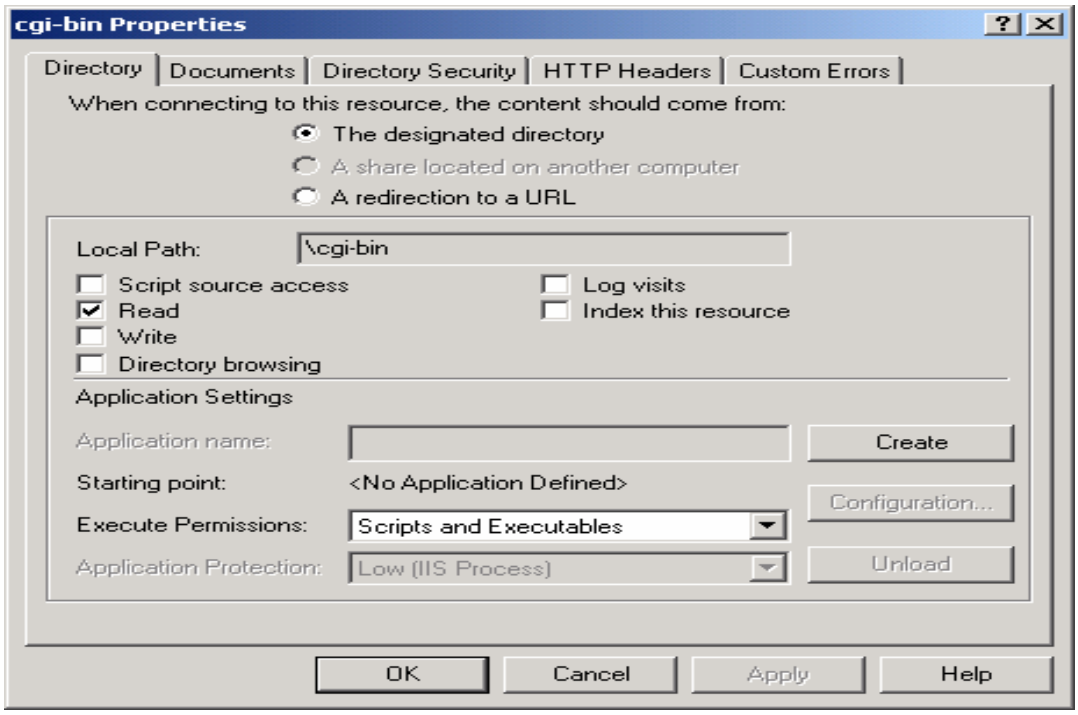


Figure 87 Allow for the directory "cgi-bin" the execute permission scripts and executables:

3.) Start the webserver and connect.

Online Yunto Q – UPSMAN is not able to initiate a shutdown of the UPS The UPSMON Windows extended commands emergency shutdown won't work either.

The Poser protocol is not able to process timer signals under the frequenz of 60 seconds. In addition a UPSMAN UPSLIB driver is required over 196. The UPSMON can not execute

a emergency shutdown of the Yunto Q Poser, because the delay timer is working under signal frequency of 60 seconds. Please execute a update in order to avoid this problem.

C Error codes (UPSMAN)

List of the UPSMAN Error codes, which consist of 4 digits e.g. 4603 indicates an error at the serial interface.

Severity information codes:

0xxx	Success information
1xxx	Severity informational
2xxx	Minor error, warning
4xxx	Major error, process stopped

Error type:

x1xx	Unknown error
x2xx	Out of heapspace
x3xx	Module not installed
x4xx	UPS protocol failure
x5xx	Locked, failure during operation
x6xx	Connection failure
x7xx	Capability failure
x8xx	UPS database error

Extended error information:

xxx1	Unknown error
xxx2	Error in installation
xxx3	Error at serial interface
xxx4	No communication with UPS,

but COM port could be opened

xxx5	No answer from UPS within 3 seconds
xxx6	Incorrect data from UPS received
xxx7	Header of UPS protocol is missing or defect

xxx8	Checksum error in protocol string of UPS
xxx9	Unspecified error
xxxA	UPS did not accept the command
xxxB	End of command string or byte was missing
xxxC	COM port could not be opened

The following error codes in table are displayed when the UPSMAN software fails to start.

Error code	Error name	Description
2	ENOENT	No such file or directory This happens if the device name is not found. The reason can be a missing colon (":") at the end of the device name
5 or 6	EIO / ENXIO	No such device or address. I.e. the device name exists, but the physical device does not. E.g. the device name is /dev/ttyS2, but the computer has only two serial devices.
22	EINVAL	Invalid argument. The serial port driver of the UNIX system does not support a function call the UPSMAN programm.
25	ENOTTY	Not a serial device. Please choose a device name which is not a serial device.

D Cable types

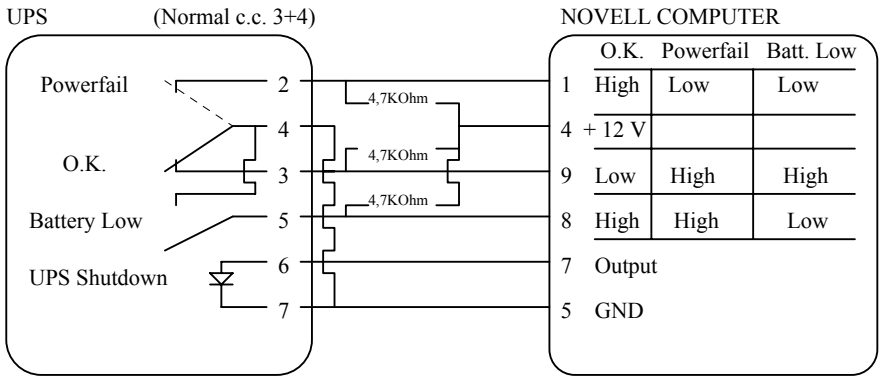


Figure 88 Cable typ 6

This cable typ is used for Windows, NetWare but not for Unix.

Settings in the configuration menu: cable 6

This cable typ is used for Windows, NetWare but not for Unix. The difference to cable typ 6 is, that there is no contact closure when UPS is in normal mode. (Cable break recognition)

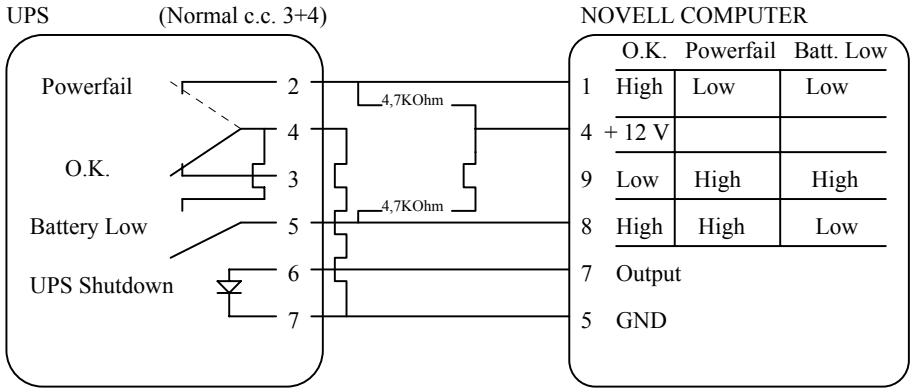


Figure 89 Cable type 2

Settings in the configuration menu: Cable 2

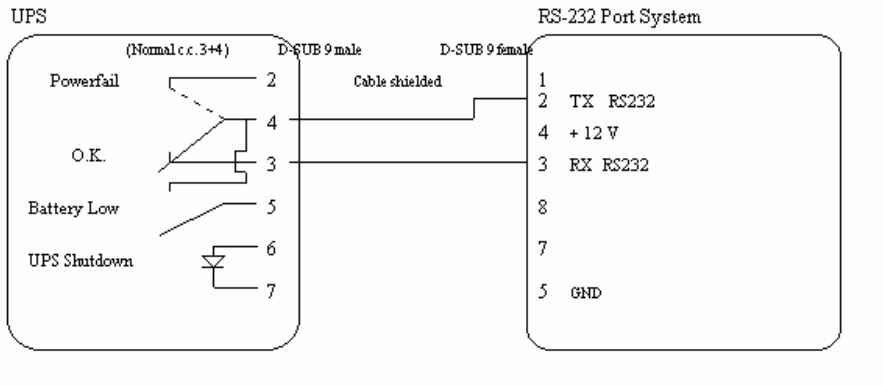


Figure 90 Cable typ X34

This typ is for use with UNIX and VMS, but can also used for Windows and Novell.

Settings in the configuration menu: R-Open or R-Close

R-Open for contact open when main supply off

R-Close for contact open when main supply off

5. Interface-Specifications

25 pin contact (male at computer side)

Pin #	Signal	Name
1	GND	Ground
2	TxT	Transmit Data
3	RxD	Receive Data
4	RTS	Request To Send
5	CTS	Clear To Send

6	DTR	Data Terminal Ready
7	GND	Ground
8	DCD	Data Carrier Detect
20	DTR	Data Terminal Ready
22	RI	Ring

9 pin contact (male at computer side)

Pin #	Signal	Name
1	DCD	Data Carrier Detect
2	RxD	Receive Data
3	TxD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring

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